Digitization Creates a Strong Value Chain Generating Cost Reductions
NATIONAL CONVENTION
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THEME
Transforming Supply Chain Through Digitization

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From the Desk of The National President

Dear Professionals,

Season’s Greetings from National President!!!

I hope, you and your family have had a wonderful Festive season.

Come winters and the pollution level shoots to a new height, trying to break its own set records. The situation is more acute to people living in metro cities. Please take care of your good health. Materials and Supply chain Managers can play a key role in downsizing the pollution level to a certain extent by using environment friendly products, leaner and greener supply chain, Procuring goods keeping whole life cycle costing in mind and ultimately their safe and materialistic disposal at the end of the life cycle.

The process of Elections under Mr. V K Jain at National Level has been started and I hope most of the NCs/Chairmen have received ballot papers to cast their votes. Last date of receiving the ballot papers duly filled and signed at IIMM NHQs is 16th November 2019. I hope by that time this Journal reaches you, you would have casted your votes to the most eligible candidate and in the better interest of Institute. I warmly welcome the next NEC to take IIMM to new peaks of success.

IIMM is in the process of finalising a project in association with World Bank to setup a Public Procurement Professional Association of India, where Professionals dealing in Public Procurement can practice latest developments in Public Procurement in the South Asian Region.

NATCOM 2019, a National Mega Event at Kolkata is approaching fast. I request all the members/subscribers to participate actively in the form of Delegates and Sponsorship.

My best wishes for the Chairman NATCOM 2019 and his team for the grand success of the event.

Yours

G. K. SINGH
National President - IIMM
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Dear Members,

The majority of Business Stakeholders believe that the ability to respond to changing consumer demands is lot more important today than it was few years ago, and will continue to increase its importance. No matter what industry you’re in, end-to-end transparency is in high demand. Customers today expect a quick, efficient purchasing and delivery process, with access to real-time updates.

As the advent of digital technology has allowed for widespread use of automation and analytics, it’s become increasingly important for supply chain professionals to capture, analyze, integrate, access, and interpret high-quality, real-time data.

The supply chain today is an extremely complex series of discrete steps taken together through marketing, product development, manufacturing, distribution and finally into the hands of the customer. The scenario will change radically over the next five to 10 years, as different industries implementing Digital Supply Chain at varying speeds. Digital transformation of Supply Chain is all about setting up of a vision to improve the product cost, Agility, Inventory levels and Customer satisfaction by implementing Digitalized processes to drive operational excellence.

Looking at the broader picture of Industry 4.0 and wanting it to be realized, it is pertinent for businesses to become more smart and digitalized. An important and critical item of this Industry 4.0 is evolution of traditional Supply Chain towards a more connected, smart, highly efficient and digitalized Supply Chain ecosystem. Digitalization of Supply Chain will bring more efficiency, transparency, resiliency and responsiveness to all the players involved — right from the suppliers of raw materials to the transporters of those supplies and finished goods and finally to the customers.

Digital transformation also provides a valuable opportunity for core business functions, such as finance and HR, to move away from manual processes and automate key areas like payroll, enabling leaders to focus on wider business opportunities. It is pertinent that companies understand that digitization does not just mean adapting to new digital technologies in the market but also to align the existing business functions and organization goals with these digital initiatives. This will help tap the potential of the existing resources with an improved performance of the organization.

Once built — the digital supply chain “network” will offer a new degree of resiliency and responsiveness enabling companies to beat the competition and provide customers most efficient and transparent service delivery. Enterprises through this digital supply chain network can experience lower production and operational costs, shorter lead times, and enhanced reporting and data analysis capabilities which can fuel better planning and production programs.

(DR. M.K. BHARDWAJ)
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1. Introduction: If India to become $5tn economy, a important steps to need to be taken include exploit the opportunities for global trade and become a preferred sourcing hub for the world. The country needs to make it simpler to manufacture and trade within India and globally, investments in trade infrastructure and adoption of digital supply chain alongwith robust logistics infrastructure are necessary to enable Indian businesses stay competitive at a global stage.

Long before industry 4.0 captured the collective imagination, supply chains have been critical cogs across industrial organizations. In recent times, though supply chains have growns to take increasingly worldly and complex shape on adoption of digital and physical technologies that expand the possibilities of what it can deliver. The advent of these technologies have enhanced the interconnected nature of supply chains and allowed it to evolve into more responsive than ever. With this, the supply chain has become more strategically critical component of the organization delivering greatest insights and enabling leaders to take better informed decisions.

India’s supply chain landscape stand is on the cusp of a revolution with digital’s transformative capabilities pushing it to altogether new heights. Considering the backbone of the economy, India’s supply chain ecosystem soars to new heights. The Indian logistics sector is expected to be worth $215 bn by 2020-21, and given its immense potential, there is a need to understand the challenges faced by the sector and remove bottlenecks to progress. With India moving boldly towards claiming its place in the global polity, we are witnessing a fast changing India. As our supply chain infrastructure improves, better regulatory climate, strong global connect and inexpensive and accessible technology present massive opportunities for SCM practitioners to optimize their supply chains. It is only then that supply chain impact will be truly far-reaching and profound.

2. Importance of Supply chain: Over the last thirty years, logistics has undergone a tremendous change: from a purely operational function that reported to sales or manufacturing and focused on ensuring the supply of production lines and the delivery to customers, to an independent supply chain management function that in some companies is already being led by a CSO - the Chief Supply Chain Officer. The focus of the supply chain management function has shifted to advanced planning processes, such as analytical demand planning or integrated S&OP, which have become established business processes in many companies, while operational logistics has often been outsourced to third-party LSPs. The supply chain function ensures integrated operations from customers to suppliers.

In the Indian context though, the digitally connected supply chain and its potential to drive innovation has yet to fully catch-on, India’s nationwide infrastructure issues have often hamstrung our supply chain network, with challenges coming with the territory, be it transporting goods by road, rail or sea. Delay in movement is often the norm, and multiple tax regimes have been an age-old challenge to surmount.

But introduction of GST has eased things considerably so too can digital supply chains kick off the net major growth wave. Logistics costs currently account for as much as 14 percent of India’s Gross Domestic Product (GDP), and smart supply chain solutions can play a major role in kearing there costs in check.

Industries as diverse as automotive, retail and manufacturing are adopting digital technologies to help reinvent their supply chains and increase business efficiencies. To note just two examples, RFID AND IoT tools are already making their impact by way of operational efficiencies and cargo safety as well as reducing transport costs by increasing the speed of freight movement.

3. Facets of digital supply chains: The emergence of new digital and analytical capabilities, combined with significant policy changes and rising customer expectations, companies in India need to upgrade their supply chain processes. Advance economies with sophisticated logistics ecosystem have demonstrated the benefits of digital transformation across the logistics value, including warehousing operations, freight transportation, and last mile delivery. There
advances can help improve the performance and efficiency of India’s logistics sector. Five important facets of digital supply chain namely internet of things (IOT), automation, blockchain, cloud computing and big data analytics are discussed as under.

i) **Internet of things (IOT):** It represents a unique technology transition that can enable predictive diagnosis and monitoring performance across the ecosystem. Advanced sensors can be deployed to monitor and detect risks pertaining to breakdowns, helping avoid process delays and fatal accidents. Additionally, global positioning system (GPS) and Radio-frequency identification (RFID) systems, are being used to provide real-time visibility. This allows service providers not only accurately predict delivery times and improve asset utilization, but also increases engagement as customers track consignments in real-time, reducing friction that used to exist on the customer side.

ii) **Automation:** From the use of robots to self-driven vehicles and drones, automation is going to be a big part of the supply chain of the future. This will reduce manual intervention for better management of costs. Artificial intelligence (AI) can play a big role in this automation drive and improve the quality and speed of services. It also holds the potential to quench any inspections, curbing the possibility of handling damage and cutting down on inventory holding time.

iii) **Blockchain:** It may be particularly suited to India given the fragmented nature of India’s logistics sector and the lack of naly common platforms to share information. The sheer quantum of manual data entry increases the risk of human error, and this would help in creating an end-to-end logistics system that is truly integrated.

iv) **Cloud Computing:** As logistics become increasingly leaner, optimizing asset utilization will be pivotal to enhancing operational efficiency. Cloud computing can enhance collaboration and increase efficiency by allowing service providers to share fleets and networks effectively. It will allow vast amounts of data created across the entire value chain to be easily accessed for real time monitoring from anywhere.

v) **Big Data Analytics:** Practitioners can drive future strategy by identifying improvements, all with the use of data analytics. The possibilities are boundless, including estimating the remaining useful life of assets, identifying any operation inefficiencies, and slashing redundancies and costs. Digital can pay rich dividends, bringing together disparate stakeholders to deliver richer value than ever.

4. **Digital Supply Chain Enablers:** The transformation into a digital supply chain requires two key enablers - capabilities and environment. Capabilities regarding digitization need to be built in the organization but typically also require targeted recruitment of specialist profiles. The second key prerequisite is to establish an IT landscape, an innovation environment with a start-up culture need to be created. This “incubator” needs to provide a high degree of organizational freedom and flexibility as well as state-of-the-art IT systems to enable rapid cycles of development, testing, and implementation of solutions. Fast realization of pilots is essential to get immediate business feedback on suitability and impact of the solutions, to create excitement and trust in innovations, and to steer next development cycles. The “incubator” is the seed of Supply Chain 4.0 in the organization - fast, flexible, and efficient.

Supply Chain 4.0 encompasses the application of the Internet of Things, the use of advanced robotics, and the application of advanced analytics in supply chain management: place sensors in everything, create networks everywhere, automate anything, and analyze everything to significantly improve performance and customer satisfaction.

5. **Way Forward:** India is prioritizing transformation of the logistics sector which will have direct positive impact on the economic growth. It reduces the cost goods and services, improves global competitiveness manufacturers and MSMEs, facilitated trade growth and creates new jobs.

One of the realities of modern day society is that it generates huge amount of data, and this is equally true of modern supply chains. IoT is one definitive technology that will transform India’s supply chain through the use of data analytics. It is possible to get real-time data at all points across the supply value chain: inventory levels, point-of-sale information, consumer buying habits, fluctuation in freight costs or raw materials can be adjusted for as needed.

New generation robotics, automated vehicles (AVs) in warehouses, blockchain, IOT sensors are going to permeate India’s logistics sector. In the time to come, digital tools will spread across the entire value chain rapidly as organizations start to realize the value of their supply chains with these digital tools.
On the basis of an assessment of the current and evolving macroeconomic situation, the Monetary Policy Committee (MPC) at its meeting today (October 4, 2019) decided to:

- reduce the policy repo rate under the liquidity adjustment facility (LAF) by 25 basis points to 5.15 per cent from 5.40 per cent with immediate effect.

Consequently, the reverse repo rate under the LAF stands reduced to 4.90 per cent, and the marginal standing facility (MSF) rate and the Bank Rate to 5.40 per cent.

- The MPC also decided to continue with an accommodative stance as long as it is necessary to revive growth, while ensuring that inflation remains within the target.

These decisions are in consonance with the objective of achieving the medium-term target for consumer price index (CPI) inflation of 4 per cent within a band of +/- 2 per cent, while supporting growth.

The main considerations underlying the decision are set out in the statement below.

Assessment

Global Economy

2. Since the MPC’s last meeting in August 2019, global economic activity has weakened further. Heightened uncertainty emanating from trade and geo-political tensions continues to cloud the outlook. Among advanced economies (AEs), the slowdown in the US economy in Q2:2019 appears to have extended into Q3:2019, weighed down by softer industrial production. The Institute for Supply Management’s index for September indicates that manufacturing slipped further into contraction to touch its lowest reading in a decade; hiring by the private sector also slowed down. In the Euro area too, incoming data suggest that activity may have moderated further in Q3, with retail sales declining and manufacturing PMI remaining in contraction for the eighth consecutive month in September. The UK economy decelerated in Q2; the contraction in industrial production and soft retail sales in July suggest that the loss of speed has continued into Q3 as well. In Japan, the loss of momentum in Q2 spilled over into Q3, albeit cushioned by a fiscal stimulus and frontloaded consumer spending ahead of a planned sales tax hike.

3. The macroeconomic performance of major emerging market economies (EMEs) was weighed down by a deteriorating global environment in Q3. The Chinese economy appears to have slowed down in Q3 as well, with both retail sales and industrial production growth weakening in July-August and exports contracting in August; attention is now focussed on the efficacy of fiscal and monetary policy stimuli in averting a sharper deceleration. In Russia, economic activity ticked up in Q2, though still subdued consumer sentiment and weak industrial production may restrain momentum, going forward. Economic activity in both South Africa and Brazil rebounded in Q2, emerging out of contraction in the previous quarter; however, this nascent recovery faces both domestic and external headwinds.

4. Crude oil prices were pulled down by softer demand, amidst adequate supplies in early August. Prices remained range bound until mid-September when supply disruptions on account of an escalating geo-political conflict resulted in a spike which has abated faster than expected. Gold prices remained elevated on safe haven demand. Central banks became more accommodative with inflation remaining below targets across major AEs and EMEs.

5. Global financial markets have remained unsettled since the MPC’s early August meeting with bouts of volatility unleashed by protectionist policies and worsening global growth prospects. In the US, the equity market’s August losses were recouped by early September – investor sentiment was buoyed by signs of an easing in US-China trade tensions. Stock markets in EMEs fell, as the strong US dollar led to capital outflows, though they recovered partially in September. Bond yields in the US continued easing till August on growth worries, before a slight uptick was triggered in early September by better than expected US retail sales data and hopes of conciliatory trade negotiations between the US and China. In the Euro area, bond yields sank further into negative territory, propelled by the cut in the deposit rate by the European Central Bank (ECB) to (-) 0.5 per cent and the reintroduction of quantitative easing. In EMEs,
bond yields exhibited mixed movements, driven by country-specific factors. In currency markets, the US dollar strengthened against currencies of other AEs. EME currencies, which were trading with a depreciating bias in August, appreciated in early September on country-specific factors and a revival of global risk-on sentiment.

**Domestic Economy**

6. On the domestic front, growth in gross domestic product (GDP) slumped to 5.0 per cent in Q1:2019-20, extending a sequential deceleration to the fifth consecutive quarter. Of its constituents, private final consumption expenditure (PFCE) slowed down to an 18-quarter low. Gross fixed capital formation (GFCF) improved marginally on a sequential basis but remained muted as in the preceding quarter. Government final consumption expenditure (GFCE) cushioned the overall loss of momentum to some extent.

7. On the supply side, gross value added (GVA) growth decelerated to 4.9 per cent in Q1:2019-20, pulled down by manufacturing growth, moderating to 0.6 per cent. Agriculture and allied activities were lifted by higher production of wheat and oilseeds during the 2018-19 rabi season. Growth in the services sector was stalled by construction activity.

8. Turning to Q2:2019-20, the initial delay in the onset of the south-west monsoon rapidly caught up from July. By September 30, 2019, the cumulative all-India rainfall surpassed the long period average (LPA) by 10 per cent. The first advance estimates of major kharif crops for 2019-20 have placed production of foodgrains 0.8 per cent lower when compared with the last year’s fourth advance estimates. Looking ahead at the rabi season, the live storage of water in major reservoirs was 115 per cent of the live storage of the corresponding period of the previous year on September 26, 2019 and 121 per cent of average storage level over the last ten years. Abundant rains in August and September have led to improved soil moisture conditions in most parts of the country, particularly central India, compared to the corresponding period of the last year. Overall, the prospects of agriculture have brightened considerably, positioning it favourably for regenerating employment and income, and the revival of domestic demand.

9. Industrial activity, measured by the index of industrial production (IIP), weakened in July 2019 (y-o-y), weighed down mainly by moderation in manufacturing. In terms of uses, the production of capital goods and consumer durables contracted. Consumer non-durables, led by edible oils, and intermediate goods, mainly mild steel slabs, posted sustained expansion and have emerged as potential growth drivers. Infrastructure/construction sector activity turned around to register a growth of 2.1 per cent vis-à-vis (-1.9 per cent in the previous month. The output of eight core industries contracted in August, pulled down by coal, electricity, crude oil and cement. Capacity utilisation (CU) in the manufacturing sector, measured by the OBICUS (order books, inventory and capacity utilisation survey) of the Reserve Bank, declined to 73.6 per cent in Q1:2019-20 from 76.1 per cent in the previous quarter. However, seasonally adjusted CU rose to 74.8 per cent in Q1:2019-20 from 74.5 per cent in Q4:2018-19. Manufacturing firms polled for the industrial outlook survey (IOS) expect capacity utilisation to moderate in Q2:2019-20. The Reserve Bank’s business assessment index (BAI) fell in Q2:2019-20 due to a decline in new orders, contraction in production, lower capacity utilisation and fall in profit margins of the surveyed firms. The manufacturing purchasing managers’ index (PMI) for September 2019 was unchanged at its previous month’s level; new orders and employment improved, albeit marginally, and new export orders declined.

10. High frequency indicators suggest that services sector activity weakened in July-August. Indicators of rural demand, viz., tractor and motorcycles sales, contracted. Of underlying indicators of urban demand, passenger vehicle sales contracted in July-August, while domestic air passenger traffic accelerated in August. The sales of commercial vehicles, a key indicator for the transportation sector, contracted by double digits in July-August. Of the two indicators of construction activity, finished steel consumption decelerated sharply in August and cement production contracted. The services PMI moved into contraction in September 2019, dragged down mainly by a decline in new business inflows.

11. Retail inflation, measured by y-o-y changes in the CPI, moved in a narrow range of 3.1-3.2 per cent between June and August. While food inflation picked up, fuel prices moved into deflation. Inflation excluding food and fuel softened in August.

12. Food inflation in August was elevated by a spike in the rate of increase in vegetables prices, a pick-up in pulses inflation and persistently high meat and fish inflation. On the other hand, softer increases in prices of eggs, oils and fats, non-alcoholic beverages and prepared meals, and deflation in prices of fruits and sugar cushioned the rise in overall food inflation.

13. Deflation in the fuel group deepened in August largely due to the pass-through from a sharp decline in international prices of liquified petroleum gas (LPG). Subsidised kerosene prices,
however, have been rising in a calibrated manner as oil marketing companies continued a gradual reduction in subsidies.

14. CPI inflation excluding food and fuel increased in July, but its roots were largely confined to prices of personal care and effects – mainly bullion prices, and transport and communication, reflecting rise in prices of petrol and diesel. By contrast, there was moderation in August, which was spread across most of the sub-groups; however, gold prices spiked further on global uncertainties.

15. The Reserve Bank’s September 2019 round of inflation expectations survey indicates that households expect inflation to rise by 40 basis points over a 3-month ahead horizon and 20 basis points over a one-year ahead horizon, possibly responding adaptively to the rise in food prices in recent months. The Reserve Bank’s consumer confidence survey shows weak consumer sentiment and tepid consumption demand, especially relating to non-essential items. Manufacturing firms see weakening of demand conditions in Q2:2019-20 and Q3 and expect their output prices to soften, going forward, as the cost of finance and salary outgoes remain muted.

16. Overall liquidity remained surplus in August and September 2019 despite expansion of currency in circulation and forex operations by the Reserve Bank draining liquidity from the system. Net daily average absorption under the LAF amounted to ₹1,40,497 crore in August, essentially on account of spending by the government, which resulted in availsment of ways and means advances (WMA) and intermittent overdraft facilities from the beginning of the month (till August 25, 2019). In September, with a steady build-up of cash balances, particularly with advance tax inflows around September 15, surplus liquidity moderated, and the Reserve Bank undertook daily net absorption of ₹1,22,392 crore in September. Reflecting easy liquidity conditions, the weighted average call rate (WACR) traded below the policy repo rate (on an average) by 8 basis points (bps) in August and by 6 bps in September.

17. Monetary transmission has remained staggered and incomplete. As against the cumulative policy repo rate reduction of 110 bps during February-August 2019, the weighted average lending rate (WALR) on fresh rupee loans of commercial banks declined by 29 bps. However, the WALR on outstanding rupee loans increased by 7 bps during the same period.

18. Net exports had contributed to aggregate demand in Q1:2019-20 on account of a deeper contraction in imports relative to exports. In Q2, merchandise exports remained weak in July and August 2019, caused by lower shipments of engineering goods, petroleum products, gems and jewellery and cotton yarn. Imports contracted faster during the period mainly due to lower international crude oil prices downsizing the oil import bill and a large fall in the volume of gold imports. Non-oil non-gold imports were pulled down into contraction by coal, pearls and precious stones and transport equipment. These developments led to a narrowing of the trade deficit during July-August 2019. Higher net services receipts and private transfer receipts helped contain the current account deficit to 2.0 per cent of GDP in Q1:2019-20 from 2.3 per cent a year ago. On the financing side, net foreign direct investment rose to US$ 17.7 billion in April-July 2019 from US$ 11.4 billion a year ago. Net foreign portfolio investment (excluding the voluntary retention route) was of the order of US$ 3.3 billion during April-September 2019 as against net outflow of US$ 11.5 billion in the same period of last year. Net disbursements of external commercial borrowings rose to US$ 8.2 billion during April-August 2019 as against net repayments of US$ 0.2 billion during the same period a year ago. India’s foreign exchange reserves were at US$ 434.6 billion on October 1, 2019 – an increase of US$ 21.7 billion over end-March 2019.

Outlook

19. In the third bi-monthly resolution of August 2019, CPI inflation was projected at 3.1 per cent for Q2:2019-20, 3.5-3.7 per cent for H2:2019-20 and 3.6 per cent for Q1: 2020-21 with risks evenly balanced. The actual inflation outcomes for Q2 so far (July-August) at 3.2 per cent have been broadly in line with these projections.

20. Going forward, several factors are likely to shape the inflation trajectory. First, the outlook for food inflation has improved considerably since the August bi-monthly policy. Kharif production is estimated at close to last year’s level, auguring well for the overall food supply situation. Vegetable prices may remain elevated in the immediate months but are likely to moderate as winter supplies enter the market. Prices of pulses are expected to remain contained by adequate buffer stocks. Secondly, forward looking surveys conducted by the Reserve Bank point to weak demand conditions persisting, with indications of softening of output prices in Q3:2019-20. Accordingly, price pressures in CPI excluding food and fuel are likely to be muted. Thirdly, crude oil prices may remain volatile in the near-term; while global demand is slowing down, the persisting geopolitical uncertainties pose some upside risks to the inflation outlook. Fourthly, three-month and one-year ahead inflation expectations of households polled by the Reserve Bank have risen in the current round reflecting near-term price
pressures. Finally, financial markets remain volatile with currencies of several emerging market economies trading with a depreciating bias in the recent period. Taking into consideration these factors and the impact of recent policy rate cuts, the CPI inflation projection is revised slightly upwards to 3.4 per cent for Q2:2019-20, while projections are retained at 3.5-3.7 per cent for H2:2019-20 and 3.6 per cent for Q1:2020-21, with risks evenly balanced (Chart 1).

21. Turning to the growth outlook, real GDP growth for 2019-20 in the August policy was projected at 6.9 per cent – in the range of 5.8-6.6 per cent for H1:2019-20 and 7.3-7.5 per cent for H2 – with risks somewhat tilted to the downside; GDP growth for Q1:2020-21 was projected at 7.4 per cent. GDP growth for Q1:2019-20 was significantly lower than projected. Various high frequency indicators suggest that domestic demand conditions have remained weak. The business expectations index of the Reserve Bank’s industrial outlook survey shows muted expansion in demand conditions in Q3. Export prospects have been impacted by slowing global growth and continuing trade tensions. On the positive side, however, the impact of monetary policy easing since February 2019 is gradually expected to feed into the real economy and boost demand. Several measures announced by the Government over the last two months are expected to revive sentiment and spur domestic demand, especially private consumption. Taking into consideration the above factors, real GDP growth for 2019-20 is revised downwards from 6.9 per cent in the August policy to 6.1 per cent – 5.3 per cent in Q2:2019-20 and in the range of 6.6-7.2 per cent for H2:2019-20 – with risks evenly balanced; GDP growth for Q1:2020-21 is also revised downwards to 7.2 per cent (Chart 2).

22. The MPC notes that the negative output gap has widened further. While the recent measures announced by the government are likely to help strengthen private consumption and spur private investment activity, the continuing slowdown warrants intensified efforts to restore the growth momentum.

With inflation expected to remain below target in the remaining period of 2019-20 and Q1:2020-21, there is policy space to address these growth concerns by reinvigorating domestic demand within the flexible inflation targeting mandate. It is in this context that the MPC decided to continue with an accommodative stance as long as it is necessary to revive growth, while ensuring that inflation remains within the target.

23. All members of the MPC voted to reduce the policy repo rate and to continue with the accommodative stance of monetary policy. Dr. Chetan Ghate, Dr. Pami Dua, Dr. Michael Debabrata Patra, Shri Bibhu Prasad Kanungo and Shri Shaktikanta Das voted to reduce the repo rate by 25 basis points.

Dr. Ravindra H. Dholakia voted to reduce the repo rate by 40 basis points.

24. The minutes of the MPC’s meeting will be published by October 18, 2019.

25. The next meeting of the MPC is scheduled during December 3-5, 2019.
The forces of Business Environment and Challenges because of Globalization, Liberalisation, advancements of Technology, changing demographics, shifts in consumer demand, resource scarcity, environmental pressures, governmental regulations and activism etc and their impact on Business was discussed in the previous article (MMR July’07 edition). These forces are not only reshaping markets, industries, and products; they are restructuring every sphere of business and profession. Also we briefly gone through Value System, Competitive Priorities, Strategy, Supply Chain and discussed forces and factors for deriving Competitive Advantage while operating under Competitive Environment.

To survive and thrive within an increasingly competitive marketplace, and succeed on sustainable basis organizations must adapt to the new techniques and business models and requires a comprehensive strategic approach to align and synergene internal systems and capabilities and improve and strengthen continuously competitive capabilities to face the challenges and combat external forces. Since purchased goods and services represent a majority of an organization’s costs, moreover it is a more critical and important supportive function in every organization, procurement function therefore has ample opportunity not only for cost reductions but also add value into the business.

Let us now discuss in this article how procurement function enhances corporation’s competitive advantage by adding value.

Competition, competitive advantage, and competitive strategy are the three basic elements those need to be conceptually understood before we proceed further to explore how procurement function acts as corporation’s competitive advantage. Competition is market imperative - businesses to be aware of competition in the market - what their competitors are doing and to find a way to compete by matching or improving on the competitors’ product or service. Competition and competitive forces were already discussed in the previous article. Competitive advantage is an important concept of strategic management. It is the measure of a firm’s competencies and performance against the factors prevailing in the firm’s external environment. It is measured by how much more value the firm is able to provide to its customers as compared to its rival firms. It defines the ‘uniqueness’ of an organization vis-à-vis its competitors. Gaining competitive advantage entail a set of specialized skills, assets, and capabilities for the organization. Competitive advantage keeps a firm above the rest of the competing firms. It is acquired by delivering a higher ‘value’ to the customers as compared to the rival firms. Competitive strategy is all about identifying and exploiting opportunities and drawing a roadmap towards gaining competitive advantage. Competitive strategies are certain approaches adopted by organizations towards gaining a sustainable competitive advantage i.e. in some way, gain some unique advantage over other firms in that industry or over substitutes to the industry’s products.

This paper examines the concepts of procurement function as a source of value capture, of innovation, competitively differentiating function, and a strategic lever of competitive advantage instead of just a traditional back-room function and look at how it is gaining significance and momentum in value creation to enhance competitive advantage of the organization.

PROCUREMENT – THE ENGINE OF CORPORATE GROWTH : In today’s dynamic business environment, companies all around the globe are continuing the pursuit of competitive advantage to boost the value proposition of the goods and services they offer. Some of the main thrusts of these efforts are cost, quality, delivery, service and innovation to focus on customer value deliverables. On an average 60 – 75% of all revenues in a typical company goes on costs to procure goods and services therefore Procurement has immense opportunity to improve bottom line, driving growth by adding value and enhance corporate image and competitive advantage.

Procurement is a critical business function virtually in every organization. The primary function of procurement is the acquisition of goods or services at the best possible Total Cost of Ownership (TCO), by evaluating and selecting suppliers; sourcing and procuring products and services based on availability, reliability and price in order to obtain the right quality products / services at the competitive price and deliver on scheduled time of requirement. Inside every company there is a procurement opportunity that offers immense potential for cost savings, improvements in quality, delivery, services, overall productivity improvements and customer satisfaction.
Poorly managed purchase function on the other hand can result in negative impact on company’s costs, product quality, deliveries, commitments and customer services and may damage the image of company’s products and reputation in the market.

Whether it is money spent on goods or services for direct material (raw goods and materials used in the manufacture of products); in-direct material (office supplies and other goods that do not go into the finished products); or services (temporary and contract labour, job works, consultancy and other services), organizations therefore are thriving for procurement strategy by which they are not only able to save costs, quantitative improvements in deliverables but serve as the conduit for converting supply-side potential into broad, business value contributions and intangible benefits. Procurement cost savings dramatically improve company’s bottom line; strong supply base mitigate supply risks; early participation of procurement in product design / development enhances corporate quality image, launching of new products, market entry into new geographies and improve the top line sales growth; collaborative approach and supplier relationships improve supply base, innovations; adoption of procurement best practices (strategic sourcing, e-sourcing, global sourcing, agile supply base, bench marking, six sigma, lean supply chain, JIT / Kanban, inventory optimization, VMI etc) proofs procurement as a strategic business differentiator; good corporate governance and ethical practices enhances corporate image; cumulatively all these provide business value and competitive advantage to the company.

**PROCUREMENT – KEY DRIVERS :**

The key drivers of procurement in the competitive environment are increased focus on customer satisfaction – customer demand; product improvements / new product developments - product & package innovations; demand for shorter product lifecycles; more complex products; increased competition; continued pressures and compulsions on costs; thrust on performance improvements and enhance operational effectiveness; greater challenges and demands from internal customers; globalization of markets and / or supply chains; external environment with regulatory complexities and compliances etc. As already discussed in the previous article procurement is an important supportive function in the value chain, it can drive organizational growth in harmony with other functions. Because of these compulsions, criticality and importance, the procurement function has been elevated to a strategic component of value creation and a rich source of competitive advantage. The Procurement function’s prime focus is on organisational objectives (to align supply base’s capabilities with company’s strategic initiatives and requirements) with flexibility to adapt to change with business environment and changes in organization’s strategy; assurance of quality (quality of finished product is mostly the result of input goods and services), manage and maintain supply risk & continuity while developing and maintaining relationships (internal co-ordination and supplier relationship management), cost controls and reductions; institutionalising best practices (operational and strategic best in class practices) and observing good ethical practices (author’s earlier articles published in MMR may be refered : Code of Ethics in Purchase: Aug’06; Code of Conduct in Negotiations : Sep’06; Code of Professional Responsibility of Buyers : Dec’06)

**PROCUREMENT STRATEGY : FUNCTIONAL SYNERGY : BUILDING CAPABILITIES :**

In this era of competitive environment, procurement function has been identified as a key value lever in the business. The focus of procurement has been on shift from a somewhat reactive, internally facing, administrative and service function to a proactive, market facing, business capability and a strategic function. In an effort to realize the anticipated value of the strategic initiatives and find new opportunities from procurement to drive value into the overall business, companies are now focusing on aligning of broader corporate governance, company policy and strategic business goals into procurement strategy and systems so as to synergise the value propositions by taking holistic approach. Making procurement work closely with other business functions it can drive flexibility, stretch to the extend to meet dynamic customer needs and creating value to the company’s business activities.

Broader strategic initiatives to synergise procurement function are to

- Implement a corporate procurement strategy and integrate procurement function into corporate strategy to provide competitive advantage.
- Leveraging strategic procurement approaches to identify the value propositions and establishing strategies for managing risk and identifying benefits in the supply base.
- Leveraging the cross functional opportunities to increase collective comprehension of cost drivers and value enhancing initiatives.
- Establishing a roadmap to increase visibility across all spend areas and proactively initiate measures to control and improve operational efficiencies to reduce the costs of purchased goods and services and elimination of non-value added activities in the process.
- Establish dynamic supply base, improve supplier performance, and make best use of buying power.
- Nurture and develop best procurement talent and encourage innovation.
• Built and develop infrastructure, adopt latest technology.

PROCUREMENT: NOT JUST BUYING: IT'S VALUE CREATION:

Procurement is not just buying, it’s delivering additional value into the business process drawing from a plethora of tangible (physical & financial) and intangible (non-physical factors) value drivers – by creating value and gaining competitive advantage from supply markets by focusing on innovation and growth, value chain optimization, relationship management, collaborative approach, advanced cost management, risk management and supply continuity. The tangible value additions are cost reductions (input material (direct and indirect) costs, indirect or contingent costs; inventory costs; process / operational costs); low cost sourcing / vendor development; supplier credits; product development - cost benefits; improvements of profit margins; quantified benefits of product quality improvements; rationalization and standardization of specifications, logistic improvements etc.

Intangible value drivers (non-physical factors) are Business Relationships (alliances and business relationships with customers, strategic partners, suppliers, investors, regulatory bodies and government groups); Internal Structures (systems and work processes that leverage competitiveness, including IT, communication technologies, systems and software, databases, documents, images, concepts and models of how the business operates, patents, copyrights and other codified knowledge); Human Competence (individual capabilities, knowledge, skills, experience and problem solving abilities that reside in people); Social Citizenship (the quality and value of relationships enjoyed with larger society through the exercise of corporate citizenship as a member of local, regional and global communities); Environmental Health (the value of one’s relationship with the earth and its resources as understood through calculation of the true costs of resources consumed by an enterprise or economy and determination of equitable exchange or contribution to the health and sustainability of the environment); Corporate Identity (the value of one’s vision, purpose, values, ethical stance and leadership as it contributes to brand equity and economic success in business relationships). Intangibles are non-physical factors that contribute to or are used in producing goods or providing services. They are expected to generate future productive benefits for the individuals or firms that control their use. The future of business relays more on intangible values than on tangible values. These intangibles may contribute most to building strong business relationships and providing unique competitive advantage.

Some of procurement intangible aspects are: becoming business associates not just buyers by identifying and pro-actively responding to broader business goals; developing sustained supply base (supply regularity - ensuring un-interrupted materials flow, supplier performance, quality, and compliance); exploring value propositions – not just price; sourcing capabilities and solutions – not buying products alone; supplier collaboration (design to delivery; supply to service support); strategic supplier relationships (suppliers are not only support by means of supply of goods and services but also are rich source of information / knowledge sharing and innovation); product development / improvement; pursuing low cost sources; improvements in speed and efficiency; faster time to deliver; enhancement of company’s brand / quality / best practices image; human resources of procurement department; knowledge and skill base; shared ownership and co-operation etc. Though difficult to quantify, rarely acknowledged in accounting methods and not adequately managed, measured or reported on by organisations, however, these are some of the critical sources of value that can be utilised by companies to improve their competitive advantage.

PROCUREMENT - A STRATEGIC LEVER FOR BOTTOM LINE IMPROVEMENT:

Procurement savings are low risk but high positive impact alternative for improving profits. Let us see how dramatically it improves the bottom line.

A generic consensus is that the revenue to cost of goods sold ratio is about 4 to 3 (that means cost of
goods sold is appx. 75% of sales revenue); assuming profit after tax (PAT) of a company is 5.5%, a 5% cost reduction in direct material cost may result in 30% increase in PAT; to achieve the same result sales revenue has to increase by 30%. (See the table). As costs differ from company to company, the financial figures too vary accordingly. A complete spend assessment will provide immense visibility into company’s spend details, total buying power, degree to which they are leveraging that power and provide opportunity to improve. Procurement in-effectiveness may result in opportunity loss and to compensate that cost almost six times extra sales efforts are required. Therefore it is obvious that procurement cost reductions may become a competitive advantage.

SUPPLY RISK AND CONTINUITY – A DAUNTING TASK OF PROCUREMENT:

The most daunting task of procurement function is how to leverage the supply base. Supply continuity is an essential business requirement, whereas supply disruptions may cause heavy losses in terms of production loss; failure of timely deliveries to customers and its consequential loss, late / fail in product launching in case of new products, loss of market goodwill and customers etc.

With supply continuity a core element for companies’ risk-management strategies, procurement occupies a pre-dominant position in defining the strategic commodities or functions that merit well-developed risk management plans to provide protection in the event of a supply disruptions by prioritizing supply locations, logistics and ensure regularities of supply (with no stock out or over stock situations) and maintain multiple suppliers or at least a single supplier with multiple locations.

While making suitable procurement risk management planning it is required to identify and monitor supply-related risk indicators, such as the percentage of purchases in key categories that have a single source, originate in potentially unstable countries or pass through vulnerable transportation bottlenecks. Proper contingency plans are also need to be made so that key suppliers create contingency plans of their own to stabilize the entire supply chain.

Appropriate demand and market forecasting mechanism provides visibility and responsiveness in the supply system. These plans not only ensure supply continuity and avert any possible supply disruptions and thus saves incidental costs, but also develop a robust supply base that achieve overall organizational responsiveness and, as a result, competitive advantage.

NEW PRODUCT DEVELOPMENT – PRIME ROLE OF PROCUREMENT:

New product development and / or product improvements on continuous basis are the hallmarks of successful businesses, and this implies being alert for innovations that will improve the quality, speed, efficiency, and reliability of supply. These are strategic business aspects that determine company’s growth and survival in the competitive environment and positioning of competitive advantage of the company. Procurement and sourcing plays a prime role in these strategic initiatives in early participation in design and development, determining product costs, launching and delivery scheduling, collaboration with external suppliers and internal design / process / production teams, post lunch product sourcing development to logistics and other associated risks and it’s contributing various cost factors. These developments reflects in measurable performance indices like total material cost reduction, process cost reduction, faster time to market, reduction of spare parts, logistic convenience and cost benefits, increased revenue, profit improvements etc.

Non involvement or late involvement of procurement on the other hand may lead to potential risks like delay in product launch, delay or fail in penetrating into new geographies, increased direct material cost, supply risks, unexpected component obsolescence, missed regulatory compliance, lack of ability to take advantage of sourcing leverage, increased incoming inspection costs, raised manufacturing cost etc. Thus it is obvious that procurement has major contributing role in new product developments and product improvements there by improve top line sales growth and provide the company competitive advantage.

PROCUREMENT : A STRATEGIC BUSINESS DIFFERENTIATOR:

Apart from regular procurement functions like managing supply base and availability; controlling supply costs and cost reductions; inventory control and optimization and resultant cost benefits etc. procurement may become a strategic business differentiator. Substantial and sustained benefits from procurement activities may be achieved for bottom line as well as top line improvements by utilizing a blend of suitable strategies, tools, techniques, skills and technology expertise.

Strategic Sourcing, e-Sourcing, Contract Management, Low Cost Country Sourcing, Collaborative Approach, Supplier Relationship Management, Agile Supply Base, Predictive Analytics, Value Chain Alignment; Bench Marking, Six Sigma and Lean Supply Chain Principles, etc. are modern tools and strategies emerging into the procurement making it a vibrant and dynamic functional activity and a strategic business differentiator that provides competitive advantage to the company.

In the subsequent articles we shall study Procurement Strategies and benchmarking world class practices.
Ten years on from the global financial crisis, the world economy remains locked in a cycle of low or flat productivity growth despite the injection of more than $10 trillion by central banks. The latest Global Competitiveness Report paints a gloomy picture, yet it also shows that those countries with a holistic approach to socio-economic challenges, look set to get ahead in the race to the frontier.

The 2019 Global Competitiveness Report is the latest edition of the series launched in 1979 that provides an annual assessment of the drivers of productivity and long-term economic growth. With a score of 84.8 (+1.3), Singapore is the world’s most competitive economy in 2019, overtaking the United States, which falls to second place. Hong Kong SAR (3rd), Netherlands (4th) and Switzerland (5th) round up the top five.

Each indicator, or “pillar” uses a scale from 0 to 100, to show how close an economy is to the ideal state or “frontier” of competitiveness in that area.

Building on four decades of experience in benchmarking competitiveness, the index maps the competitiveness landscape of 141 economies through 103 indicators organized into 12 themes. Each pillar, which cover broad socio-economic elements are: Institutions, infrastructure, ICT adoption, macroeconomic stability, health, skills, product market, labour market, the financial system, market size, business dynamism and innovation capability.

WHAT IS COMPETITIVENESS : What is economic competitiveness? The World Economic Forum, which has been measuring countries’ competitiveness since 1979, defines it as: “the set of institutions, policies and factors that determine the level of productivity of a country.” Other definitions exist, but all generally include the word “productivity”.

The Global Competitiveness Report is a tool to help governments, the private sector, and civil society work together to boost productivity and generate prosperity. Comparative analysis between countries allows leaders to gauge areas that need strengthening and build a coordinated response. It also helps identify best practices around the world.

The Global Competitive Index forms the basis of the report. It measures performance according to 114 indicators that influence a nation’s productivity. The latest edition covered 141 economies, accounting for over 98% of the world’s GDP. Countries’ scores are based primarily on quantitative findings from internationally recognized agencies such as the International Monetary Fund and World Health Organization, with the addition of qualitative assessments from economic and social specialists and senior corporate executives.

A LOST DECADE : Economic tipping point and a widening competitiveness gap

The world is at a social, environmental and economic tipping point. Subdued growth, rising inequalities and accelerating climate change provide the context for a backlash against capitalism, globalization, technology, and elites. There is gridlock in the international governance system and escalating trade and geopolitical tensions are fuelling uncertainty. This holds back investment and increases the risk of supply shocks: disruptions to global supply chains, sudden price spikes or interruptions in the availability of key resources.

The Global Competitiveness Report 2019 reveals an average across the 141 economies covered of 61 points. This is almost 40 points short of the “frontier”. It is a global competitiveness gap that is particularly concerning, given the world economy faces the prospect of a downturn. The report’s survey of 13,000 business executives highlights deep uncertainty and lower confidence.

While the $10 trillion injection by central banks is unprecedented and has succeeded in averting a deeper recession, it is not enough to catalyse the allocation of resources towards productivity enhancing investments in the private and public sectors.

However, some of this year’s better performers appear to be benefiting from global trade tensions through trade diversion, including Singapore (1st) and Viet Nam (67th), the most improved country in 2019.

The principal culprits : Persistent weaknesses in the drivers of productivity growth are among the principal culprits. In advanced, emerging and developing economies, productivity growth started slowing in 2000 and decelerated further after the crisis. Between 2011 and 2016, “total factor productivity growth” –
or the combined growth of inputs, like resources and labour, and outputs – grew by 0.3% in advanced economies and 1.3% in emerging and developing economies.

The financial crisis added to this deceleration through “productivity hysteresis” – the long-lasting delayed effects of investments being undermined by uncertainty, low demand and tighter credit conditions. Beyond strengthening financial system regulations, many of the structural reforms designed to revive productivity that were promised by policy-makers in the midst of the crisis did not materialize.

The injection of cash by the world’s four major central banks may have even contributed to divert more capital towards the financial market rather than to productivity-enhancing investments.

**WHO’S THE BEST IN CLASS?**

1. With a score of 84.8 out of 100, Singapore is the country closest to the frontier of competitiveness

2. Other G20 economies in the top 10 include the United States (2nd), Japan (6th), Germany (7th) and the United Kingdom (9th) while Argentina (83rd, down two places) is the lowest ranked among G20 countries

3. Asia-Pacific is the most competitive region in the world, followed closely by Europe and North America [*Some Asia-Pacific rankings: Singapore (1st), Hong Kong (3rd) Japan (6th) Taiwan (12th), South Korea (13th), Australia (16th), New Zealand (19th), Malaysia (27th), China (28th), Thailand (40th), Indonesia (50th), Brunie (56th), Philippines (64th), Vietnam (67th), India (68th), etc.*]

4. The United States may have lost out to Singapore overall, but it remains an innovation powerhouse, ranking 1st on the business dynamism pillar, 2nd on innovation capability, and 1st for finding skilled employees

5. Nordic countries are among the world’s most technologically advanced, innovative and dynamic while also providing better living conditions and social protection

6. Denmark, Uruguay and Zimbabwe have increased their shares of renewable sources of energy significantly more than other countries at their respective levels of competitiveness

**WINNING THE GAME – HOW TO GET AHEAD?**

The index examines the relationship between competitiveness and the two other dimensions of sustainable development – social cohesiveness and environmental sustainability. It shows that there are no inherent trade-offs between competitiveness and sustainability, and between competitiveness and social cohesiveness. This suggests a “win-win” policy space, where a productive, low-carbon, inclusive economy is possible, and it is the only viable option going forward.

**Be an all-rounder :** The report is a reminder to apply a holistic approach and to better balance short-term considerations against factors whose impact is felt beyond quarterly results and election cycles. For example, the results of the index show that labour and education policies have not been keeping up with the pace of innovation in most countries, including in some of the largest and most innovative economies.

For least-developed and emerging economies, their fragile economic foundations make them highly vulnerable to shocks. With extreme poverty reduction decelerating and nearly one-half of humanity still struggling to meet basic needs, the report suggests the need for sustained, productivity enhancing economic growth remaining critical for improved living standards.

In parallel, the unfolding climate crisis requires urgent, decisive and coordinated action by policy-makers. Supporting economic growth at all costs can no longer be a sole objective.

**Integrate tech :** Governments must better anticipate the unintended consequences of technological integration and implement complementary social policies that support populations through the Fourth Industrial Revolution. The report shows that several economies with strong innovation capability like South Korea, Japan and France, or increasing capability, like China, India and Brazil, must improve their talent base and the functioning of their labour markets.

The world’s largest economies also have room for improvement on technology governance. Based on how the legal frameworks in their countries are adapting to digital business models, only four G20 economies made it into the top 20: United States (1st), Germany (9th), Saudi Arabia (11th) and the United Kingdom (15th). China ranks 24th in this category.

**Education, education, education :** Talent adaptability is critical. It pays to enable the workforce to contribute to the technology revolution and to be able to cope with its disruptions. Talent adaptability also requires a well-functioning labour market that protects workers, not jobs. Advanced economies such as South Korea, Italy, France and, to some extent, Japan need to develop their skills base and tackle rigidities in their labour markets. As innovation capacity grows in emerging economies such as China, India and Brazil, they need to strengthen their skills and labour market to minimize the risks of negative social spillovers.

**Economic Growth Does Not Happen In A Vacuum :** Sustained economic growth remains the surest route out of poverty and a core driver of human development. For the past decade, growth has been subdued and remains below potential in most developing countries, seriously hampering progress on several of the UN’s 2030 Sustainable Development Goals (SDGs). The competitiveness landscape of 2019 does not bode well. Individual countries, the aid
The world is not on track to meet any of the SDGs. Least developed countries have missed the target of 7% growth every year since 2015. Extreme poverty reduction is decelerating. 3.4 billion people – or 46% of the world’s population – lived on less than $5.50 a day and struggled to meet basic needs. After years of steady decline, hunger has increased and now affects 826 million – or one in nine people – up from 784 million in 2015. A total of 20% of Africa’s population is undernourished. The “zero hunger” target will almost certainly be missed.

The index shows that there is little determinism and fatalism in the process of economic development. Economic growth does not happen in a vacuum. Some basic building blocks are required to jumpstart the development process, and more are needed to sustain it. In the current volatile geopolitical context, and with a likely downturn ahead, building economic resilience through improved competitiveness is crucial, especially for low-income countries.

So as monetary policies begin to run out of steam, it is crucial for economies to rely on fiscal policy and public incentives to boost research and development, enhance the skills base of the current and future workforce, develop new infrastructure and integrate new technologies.

» Global Competitiveness Rankings 2019 is attached.

» Full report is here.

https://www.weforum.org/reports/how-to-end-a-decade-of-lost-productivity-growth
CVC TO CALL FOR A ‘REVISIT’ OF OLD TENDERING SYSTEM

Central Vigilance Commission (CVC) now believes that the L1 system may not be the most appropriate and capable method of delivering the results commensurate with the high growth trajectory of development envisioned for the country.

NEERAJ CHAUHAN

The L1 tendering system, also called Least Cost Selection Method under which the lowest bidder is given a contract, has been prevalent in the government departments, ministries, public sector undertakings (PSUs) for over 70 years.

But the Chief Vigilance Commission (CVC) now believes that the L1 system may not be the most appropriate and capable method of delivering the results commensurate with the high growth trajectory of development envisioned for the country and it needs to be done away with, according to people aware of the development.

The apex vigilance institution has prepared a concept note or a proposal in this regard, which would be put before the government very soon. HT has seen a copy of the concept note, which says that the conventional L1 method was not suited in high impact infrastructure projects or for setting up complex processing unit or purchasing a state of art machine/equipment.

The CVC says that “it needs to be revisited” and “an all-inclusive public procurement strategy is required” in sync with a rapidly changing world, which calls for complex technological solutions at the best prices for the larger public good.

The CVC has been exploring alternative strategies. It has over the past three-four months held discussions with major players like Oil and Natural Gas Corporation (ONGC). It has also been studying the guidelines of the World Bank and Asian Development Bank on procurement as well as Tamil Nadu, Rajasthan, and Karnataka’s public procurement acts, the people said.

After discussions, it has concluded that while the L1 system may still be good for procurement of routine works and non-consulting services, but for high impact and technology complex procurements, this method may not be able to cater to today’s need for innovation, quality, speed, functionality, efficiency.

Citing a flaw in L1, CVC note says that a bidder with better credentials and higher capability tends to quote a higher price to meet the economics for the superior product, services and eventually loses out in price competition.

The CVC has recommended alternative strategies like Quality-cum-Cost Based Selection (QCBS), Quality-Based Selection, Quality-cum-Least Cost Based Selection, Procurement Based on Life Cycle Cost and Swiss Challenge for future procurement.

In the QCBS, according to CVC, higher weightage—70:30 or 80:20—could be given to the technical credentials of a bidder, which may include experience, manufacturing capability, availability of state of the art machinery, systems, domain expertise, design etc vis-a-via the price offer. “This method is capable of selection of vendors of superior credentials, which in turn will be capable of delivering higher quality output,” the note says.

The Quality-Based Method simply focuses on quality and price can be mutually agreed upon. About third suggestion, QLCSB, the CVC says best bidders could be shortlisted based on quality and then price bids of top three or more could be opened and lowest could be offered the work.

About procurement based on Life Cycle Cost, CVC says recurring costs on maintenance and operation may, at times, outweigh the initial cost considerations. In such cases, a superior quality infrastructure asset with lesser maintenance, higher productivity, higher uptime backed by financial instruments like bank guarantees should be considered.

About the Swiss Challenge, CVC says in this method, the private sector proposal initiator may submit a suo motu proposal to the government agency for a project. After studying the proposal, the government may put up competitive bidding for counter-proposals. If the initiator fails to match the counter-proposal, then it may go to the latter.

Former ONGC chairman R S Sharma called the note a welcome move. “L1 does not work especially where technical expertise is required. It is as if you have to go to the doctor, you will choose the best doctor, not the one which charges the least. L1 is suitable only in orders and contracts where there is bulk item purchase,” he said.

“But the most important thing [in this] is that transparency should not be compromised by somebody using discretion. When PSUs, government departments or ministries use discretion, then you have corruption. Evaluation criteria should be predetermined. This brings more objectivity,” Sharma said.
“TRANSFORMING FUTURISTIC TECHNOLOGY ENABLED SUPPLY CHAIN 4.0– THE NEXT INDUSTRIAL REVOLUTION”!

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Abstract: The Next Generation Digital Supply Chain in –Re-Energise Future of India, digital technologies like social media, mobile, and analytics are advancing rapidly on the economic landscape. These innovations are used widely by consumers and employees alike. Facebook has more than 1 billion users. There are more than 6 billion mobile phones. Employees often have better digital solutions at home than they do at work, and many customers are more technology savvy than the people trying to sell to them.

India is at the cusp of a digital chain supply revolution. Declining broadband subscription prices, aided by the launch of 4G services, have been driving this trend. This has led to an ever-increasing number of “netizens.” Furthermore, the likely launch of 5G services is expected to significantly augment the country’s internet user base.

Internet has become an integral part of this growing Indian population segment for remaining connected with friends, accessing emails, buying movie tickets and ordering food. The changing lifestyles of the country’s urban population have also led many people relying on the internet for their shopping needs. The convenience of shopping from the comfort of one’s home and having a wide product assortment to choose from has brought about increased reliance on the online medium.

Disruptive innovations are currently changing the landscape of many industries and their business models. Because of increasingly digitalized processes and an exponential growth of sensible data, supply chains are also impacted by the fourth industrial revolution.
The trend of online shopping is set to see greater heights in coming years, not just because of India’s rising internet population, but also due to changes in the supporting ecosystem. Players have made intensive efforts to upgrade areas such as logistics and the payment infrastructure. Furthermore, the Indian consumer’s perception of online shopping has undergone a drastic change, and only for the good. Given these developments, venture capital investors, who were restricting themselves to the sidelines, are now taking a keen interest in the country’s e-Commerce market.

In today’s ferociously competitive global business environment, corporate are under compulsions to find new and unique ways to create and deliver value to customers through innovations and the demand to innovate and – Efficient, First and Tailored deliver better value addition is growing ever stronger and stronger.

Innovate to be strongly differentiated and transform supply chain to make it a driver for sustainable growth.

The present paper provides a brief overview of opportunities and challenges encountered by the emerging Innovative Technology Enabled Supply Chain Practicin India’s economy. It is heartening to note that India is called the ‘services hub’ of the world.

**Key Words:** (Innovation, Sustainable, Economy, Technologies, Value Chain, Processes)

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**I. Introduction: Technology in Supply Chain:** Around the world, traditional manufacturing industry is in the throes of a digital transformation that is accelerated by exponentially growing technologies (e.g. Artificial intelligence (AI), Augmented Reality (AR), autonomous drones, Block chain, sensors, 3D printing, Internet of Things (IoT) Internet of Everything (IoE) Vertical

Behind the scenes of the world’s leading industrial companies, a profound digital transformation is now underway. Industrial leaders are digitising essential functions and processes. They are enhancing their product portfolio with digital functionalities and are investing in data analytics as a foundational capability to drive innovation and significant improvements in efficiency. In India as well, we see industrial companies planning to dramatically increase their overall level of digitisation.

The term ‘Industry 4.0’ stands for the fourth industrial revolution. Other related terms include ‘Industrial Internet’ or ‘digital factory’, although neither takes as a complete view. While industry 3.0 focused on the automation of single machines and processes, industry 4.0 concentrates on the end-to-end digitisation of all physical assets and their integration into digital ecosystems with value chain partners. Generating, analysing and communicating data seamlessly underpins the gains promised by Industry 4.0, which networks a wide range of new technologies to create value.

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**Figure 1. A history of industrial revolutions: Industry evolution with key developments**


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**Source:** Germany Trade Invest, "INDUSTRY 4.0—manufacturing for the future," July 1, 2016. National Academy of Sciences and Engineering, "Securing the future of German manufacturing industry. Recommendations for implementing the strategy ‘INDUSTRY 4.0’" April 2013. Deloitte analysis

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**Graph:** Deloitte Industry Press | Deloitte.com

**Industry 1.0**
- Manufactures, items and other goods
- Traditional manufacturing

**Industry 2.0**
- Piece assembly and productivity

**Industry 3.0**
- Computer and network solutions

**Industry 4.0**
- Connectivity, IoT and analytics

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**I. What is Industry 4.0?**

“The question arises with industry 4.0 of whether it is an evolution or a revolution.”

The concept of industry 4.0 is widely used across Europe, particularly in Germany’s manufacturing sector. In the United States and the English-speaking world more generally, some commentators also use the terms the ‘internet of things’, the ‘internet of everything’ or the ‘industrial internet’.
The concept of industry 4.0 is widely used across Europe, particularly in Germany’s manufacturing sector. In the United States and the English-speaking world more generally, some commentators also use the terms the ‘internet of things’, the ‘internet of everything’ or the ‘industrial internet’.

What all these terms and concepts have in common is the recognition that traditional manufacturing and production methods are in the throes of a digital transformation. For some time now, industrial processes have increasingly embraced modern information technology (IT), but the most recent trends go beyond simply the automation of production that has, since the early 1970s, been driven by developments in electronics and IT (see Chart 1).

II. Industry 4.0 is the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the Internet of things and cloud computing. Industry 4.0 creates what has been called a “smart factory”. Within the modular structured smart factories, cyber-physical systems monitor physical processes, create a virtual copy of the physical world and make decentralized decisions. Over the Internet of Things, cyber-physical systems communicate and cooperate with each other and with humans in real time, and via the Internet of Services, both internal and cross-organizational services are offered and used by participants of the value chain.

While terms like industrial Internet and digital factory are also used to describe these changes, here, we use Industry 4.0 to describe the journey industrial companies are taking towards a complete value chain transformation. At the end of this transformation process, successful industrial companies will become true digital enterprises, with physical products at the core, augmented by digital interfaces and data-based, innovative services. These digital enterprises will work together with customers and suppliers in industrial digital ecosystems. These developments will fundamentally change individual companies as well as transform market dynamics across a whole range of industries. And that is true in countries all around the world—in both developed and emerging markets.

Connected manufacturing as Industry 4.0, several other commonly known terms may point to the same phenomenon. These include:

- Industrial Internet
- Connected Enterprise
- SMART Manufacturing
- Smart Factory
- Manufacturing 4.0
- Internet of Everything
- Internet of Things for Manufacturing

The term “Industrie 4.0” originates from a project in the high-tech strategy of the German government, which promotes the computerization of manufacturing.

**Design principles**

There are 4 design principles in Industry 4.0. These principles support companies in identifying and implementing Industry 4.0 scenarios.[1]

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<tr>
<th>Table 2. Industry 4.0 key business objectives, organized</th>
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<td><strong>Productivity improvements</strong></td>
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<td>• Maximizing asset utilization and minimizing downtime</td>
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<td>• Driving direct and indirect labor efficiency</td>
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<td>• Managing supply network costs and synchronization</td>
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<td><strong>Risk reduction</strong></td>
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<td>• Mitigating geographic risks</td>
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<td><strong>Incremental revenue</strong></td>
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<td>• Finding sources of growth for the core business</td>
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<td>• Growing aftermarket revenue streams</td>
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<td>• Deepening customer understanding and insights</td>
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<td>• Strengthening customer integration and channels</td>
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<td><strong>New revenue</strong></td>
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<tr>
<td>• Creating new products and service offerings</td>
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<td>• Expanding internationally and in emerging markets</td>
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<td>• Identifying attractive M&amp;A opportunities</td>
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1. **Interoperability**: The ability of machines, devices, sensors, and people to connect and communicate with each other via the Internet of Things (IoT) or the Internet of People (IoP).

2. **Information transparency**: The ability of information systems to create a virtual copy of the physical world by enriching digital plant models with sensor data. This requires the aggregation of raw sensor data to higher-value context information.

3. **Technical assistance**: First, the ability of assistance systems to support humans by aggregating and visualizing information comprehensibly for making informed decisions and solving urgent problems on short notice. Second, the ability of cyber
physical systems to physically support humans by conducting a range of tasks that are unpleasant, too exhausting, or unsafe for their human co-workers.

4. Decentralized decisions: The ability of cyber physical systems to make decisions on their own and to perform their tasks as autonomously as possible. Only in the case of exceptions, interferences, or conflicting goals, are tasks delegated to a higher level.

III. Challenges

Challenges which have been identified include

1. IT security issues, which are greatly aggravated by the inherent need to open up those previously closed production shops

2. Reliability and stability needed for critical machine-to-machine communication (M2M), including very short and stable latency times

3. Need to maintain the integrity of production processes

4. Need to avoid any IT snags, as those would cause expensive production outages

5. Need to protect industrial knowhow (contained also in the control files for the industrial automation gear)

6. Lack of adequate skill-sets to expedite the march towards fourth industrial revolution

7. Threat of redundancy of the corporate IT department

8. General reluctance to change by stakeholders

9. Loss of many jobs to automatic processes and IT-controlled processes, especially for lower educated parts of society

IV. Impact of Industry 4.0

Proponents of the term claim Industrie 4.0 will affect many areas, most notably:

1. Services and business models

2. Reliability and continuous productivity

3. IT security

4. Machine safety

5. Product lifecycles

6. Industry value chain

7. Workers’ education and skills

8. Socio-economic factors

9. Industry Demonstration: To help industry understand the impact of Industry 4.0, Cincinnati Mayor John Cranley, signed a proclamation to state “Cincinnati to be Industry 4.0 Demonstration City”.

10. A article published in February 2016 suggests that Industry 4.0 may have a beneficial effects for emerging economies such as India.

V. Addressing today’s challenges

1. Go beyond just data, generate insights – Use data analytics to understand customers, market trends, track usage patterns, predict failures etc.

2. Improve, standardize, and automate: processes to reduce internal cost to serve

3. Contract effectively to get best value and manage risk in the changing digital landscape

4. Embrace technology to support business e.g. application of sensors, drones, machine learning, 3D printing etc.

5. Develop right skills internally and explore partnerships to meet new digital needs

VI. What can you do to prepare for the future?

Behind the great potential of the digital supply chain (DSC) lies Industry 4.0, the fourth industrial revolution. A transformation in production and automation was brought on first by steam and water power (Industry 1.0), then by electrification (2.0), and more recently by the digital computer (3.0). Industry 4.0, digitization, is about companies orienting themselves to the customer through e-commerce, digital marketing, social media, and the customer experience.
Digital ubiquity is also causing companies to completely rethink how they go about operations. Operations is often mistakenly viewed as “manufacturing,” but operations is what gives a company its ability to act. As with every other aspect of a company, digital technology is enabling completely new operating models.

VII. Conclusion

In this work on Industry 4.0 two methodological approaches have been used to explore the impact on the procurement function. A scoping study was used to better understand Industry 4.0 while in-depth explorative interviews with seven procurement managers should reveal insights from practice.

Of course this study is limited with regards to the number of participants in the explorative survey. However, the conceptual findings and empirical insights support the conceptual differentiation of “Procurement 4.0” from previous maturity levels of technology use in procurement. The observations have been collected in form of six fundamental observations. Obviously, Procurement 4.0 must support superior Industry 4.0 strategies of the company. In this role it shall assure the dynamic cooperation across organizations borders and the achievement of a collaboration productivity rent, while safeguarding the companies risk exposure within the Industry 4.0 supply chain. However, research on the topic is still in its infancy, while practice signaled a high demand for explanatory knowledge. More conceptual and empirical work is needed to better understand the effects of Industry 4.0 on procurement in detail.

With these considerations in mind, this work is an initial exploration of the phenomenon and further observations need to be taken.

VIII. References:

1. Google.co.in
2. Https://en.wikipedia.org/wiki/Industry_4.0
5. Industry 4.0: Building the digital enterprise- pwc.in
Supply Chain is typically seen as a cost center. Digitization allows for a paradigm shift making supply chains a differentiator and a strategic pillar of new business models.

Digitization can enhance the customer experience, improve efficiencies by eliminating manual processes, and foster new operating business models. The supply chain exists to streamline the processes involved in procurement and as a way of increasing efficiencies business-wide. Not only will efficiency remain at the heart of the supply chain, but with digitalization enabling high levels of connectivity, we'll see greater transparency and collaboration across different departments. In addition to ensuring the security of valuable information assets, companies also have the challenge of achieving an appropriate level of sustainability, while pioneering and advancing the digital supply chain overall.

One way to reduce costs is through a digital supply chain platform. The digitization of data and the application of collaboration, automation, and analytics technology presents the opportunity to drive business value throughout the global supply chain.

A digital supply chain will help to reduce risk, improve agility, and reduce costs in many areas of company's operation. According to IDC estimates, by 2020, digitally-mature companies will achieve $430 billion in productivity gains.

In today's price competitive market, every company tries to keep their cost at minimum by optimizing inventory levels to ensure more full-price sales. Digitization eliminates barriers to supply chain productivity by application of digital capabilities to processes, products, and assets to improve efficiency, enhance customer value, manage risk, and uncover new monetization opportunities. Benefits of digital transformation supply chain management: There are many benefits as companies digitize their supply chain processes with modern SCM systems. Below are main of them

Ø Just-in-time: Just-in-time (JIT) becomes accessible. JIT manufacturing has been a cornerstone of a few vast enterprises for decades, but the technology backing it was inaccessibly expensive. Now, every enterprise can enjoy a digital supply chain that ensures that critical decisions and deliveries are pushed to the last minute. Doing so optimizes decision making and saves costs.

Just-in-time (JIT) especially in Fashion/Fabrics industry, fashion brands can postpone critical decisions on style adoption, product quantities, etc., until the last possible minute — allowing them to design styles much closer to final delivery date and to take advantage of the latest trends.

Ø Improve cash flow: With lower lead times and a JIT approach a digital supply chain reduces capital requirements and improves cash flow as less money is tied up in keeping excess stock in a warehouse. Supply chain data becomes accessible. The faster the supply chain moves, the less capital is tied up in the supply chain — a crucial benefit of digitizing your supply chain management processes. Cost of working capital will substantially reduce mainly due to timely delivery of products and it turns to speedy recovery from customer.

Ø Optimize supply chain lead times: These include factors such as the lead time for raw materials, reserving production capacity to ensure factory availability at the right time, and distribution planning.

Ø Enable a demand-driven supply chain: A demand-driven supply chain is the crux of supply chain management; without a digital system, though, it's impossible. Digitization allows companies to adjust products in the supply chain based upon demand for those products using real-time sales information, allowing them to accelerate production of best-sellers.

Ø Out of stock: Supply chains become forward-looking. Instead of operating on a reactive basis, digital supply chains allow companies to predict future requirements as more data is collected, analyzed, shared and eliminate supply chain glitches. Products that are out of stock implies a loss in revenue for a business. A digital supply chain can ensure that your company never runs out of stock, nor orders too much stock — which eventually leads to high discounting. Further, adopting JIT techniques, optimizing lead times and responding to consumer demand greatly increase the likelihood that companies can have the right product mix and to attract consumers helping in minimizing markdowns and out-of-stocks. Markdowns are dollar-for-dollar profit reducers, while out-of-stocks result in missed sales altogether.

Conclusion: Supply chains involve multiple parties that need to interact on a frequent basis. Smoothing out these interactions is the predominant goal of a digital supply chain. A digital supply chain can eliminate manual processes and instead connect enterprise digital systems into a single, fluent communications channel. Needless to say that, an effective digital supply chain serves as a key to success in supply chain management.

DIGITIZATION “A KEY TO SUCCESS IN SUPPLY CHAIN MANAGEMENT”

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Materials Management Review

November 2019 | 25
INVENTORY MONITORING \\& CONTROL

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INTRODUCTION:

INVENTORY: Inventory is defined as the amount of Stock kept in the total chain for use at any given point in time. Inventory holding is a very critical element in any process without which a production line cannot function. At the same time holding higher Inventory beyond the planned requirement would lead to unnecessary blocking of funds.

Stores Function: Stores are very important link in the construction industry where the standard of materials kept preserved through different inventory techniques. Normally in the manufacturing unit, warehouses are well defined and the area of material issued is being designed to support the process.

But in the case of construction industry, implementation of stores is not that relatively easy due to different scenarios like location change, client specification etc. Construction industry generally has formwork, MEP and civil oriented materials and the same has to be witnessed each now and then for controlling the wastage which yields better margin for the project.

In general,

- Materials are scattered in different areas of the project.
- Location of the stores frequently get changed which indeed to lose materials.
- If two contractors are working in the same premises, chances of losing the material are very high.
- MEP and Civil oriented materials are the subsidiary items that are easy to get misplaced or damaged while stacking in the inventory or warehouse.

Inventory Control methods

Inventory control is a very complex process and multiple information sources are required to define the control mechanism

In order to control the wastages through misplacing, improper stacking, different types of inventory techniques are followed and the most utilitarian are listed below,

- ABC classification (Always Better Control)
- VED Analysis (vital, Essential, Desirable)
- FSN Analysis (Fast, Slow and Non-moving)
- SDE Analysis (Scare, Difficult, Easy to obtain)
- JIT (Just In Time)

ABC and FSN are the popular one which even tracks the stockpile was not been obsolete for months. This paper aims in investigating how the obsolete materials cut down the margin and the ways to deal with it.

2.0 PURCHASING STRATEGY IN CONSTRUCTION INDUSTRY:

The goal of every organization is to develop an efficient purchasing and supply management in order to be distinctive and sustainable in the current scenario / market. In every Organization, procurement takes the cake. Procurement of items consumes a Major portion of the resources of any Organization.

On a thumb rule, the Material cost of any product is ranging between 45 to 65% of the product cost. This indicates the importance of properly preparing a Purchasing methodology. An improper purchasing strategy and supply management could lead to worst financial implications in the rivalry between the construction industries.

A general purchasing strategy followed in construction is being displayed through flowchart.
The traditional policy of purchasing followed in construction industry in which the job site raise the purchase request after checking inventory, and the same thing is been forwarded to central purchasing team for processing. But, this policy has some flaws, which could blemish the numbers that a company can save directly. Now, it’s time to find and validate the flaws.

PROBLEMS AND CONSTRAINTS IN TRADITIONAL PURCHASING POLICY: The above strategy of purchasing policy, where central purchasing team co-ordinates between various job sites in procuring materials is a stumbling block in developing efficient supply chain management in construction industry. The flaws which vandalize the supply management are listed below,

- Excess inventory carrying obsolete materials.
- Inadequate inventory causing productivity loss.
- Non-moving materials are not conspicuous to declare surplus.
- Material request are not consolidated from different project sites.

The below flow chart is concerning the aforementioned constraints in a nutshell,

Here the Plant A request 1500 no’s of some X material in their job site and Plant B requires 1350 no’s of some Y material in their job which was procured by CPT to their respective sites.

Scenario: Here in Plant A, client request for a change of materials and the Plant A again approaches CPT for new procurement of revised material requested by client. But in Plant B, the revised material of Plant A is available in surplus quantity of 250 numbers, since the order was not properly consolidated or the respective job site could have raised excess quantity which was not checked by CPT. CPT never consider the surplus quantity which was available in Plant B as that won’t satisfy the entire need of Plant A, so preserved in inventory for future use. CPT goes with new procurement. This was the important flaw which could result in cutting down the margin.

Now, the material in Plant A remains obsolete carrying out unnecessary inventory cost and the material in Plant B also goes unused or scrapped for the ground value.

What happens when CPT goes for new procurement?

- Again the company has to bear the vendors serendipitous transportation.
- Cost of material will be high since the quantity is less than the EOQ.
- Delivery of material will not be in time, since the vendor will always look for combining the consignment where he gets some profit in transportation.

The above mentioned scenario is just an example for understanding, refer the below bar chart which distinguish the quantum of materials used from preserved materials in the inventory over a period of one year.

The chart simply explains the ratio of materials that get used from the obsolete materials from various inventories of job sites or from central warehouse of the company. This summary displays that within only 10% the materials have been used, rest all the materials are simply carrying out the inventory cost and also loses its properties.

The ways and the opportunity for improving procurement methodology are discussed below,

IMPROVEMENTS and OPPORTUNITIES: The most important thing in improvements and opportunities is analyzing the backlogs, they are

1. The major reason behind the scenario of materials getting obsolete is the organization lack of control over the procurement activity which was initiated against the surplus materials available right away in their plants.

The best solution for the above constrain rely on the inventory or warehouse personnel engaged in
the particular plant who can easily identify the non-moving materials and the materials which was copious from earlier plants.

They have to identify and upload those materials in the ERP, wherein that alerts the central purchasing team to utilize those materials available as surplus in other Plants.

2. The most accentuate problem is that, improper finalizing of quantity required for the Plant or project site which leads to the scenario of getting obsolete.

Here the problem to be noticed with high regards, CPT processes the direct request of site without any cross checking the quantity actually required for the site or plant.

For example the actually quantity of site will be say some 1500 no’s but the request for the same material will be 1800 no’s. So, in this case, the entire BOQ and the materials included in ACE should be worked out and uploaded in the particular site or plant ERP module.

This may stop the purchasing of excess quantity then and there, which will save a huge amount of cost instead of materials deteriorated.

3. Since big conglomerate own their warehouse, their propensity towards the materials dumped in their warehouse are trivialize.

The solution for this type of scenario is the analysis of materials periodically (say 6 months once),

Ø Analysis of materials in the earlier 6 month (what percentage of it is consumed).

Ø If the materials have not been consumed for the past 6 months, identify that material.

Now, reverse logistics is the tool. Bring the particular vendor back to our warehouse and request him to inspect the materials, once it is done process the dispatch (back to vendor place).

Further to it, you can request the vendor to take back the materials at the purchased rate (happens only if you back good rapport with him) or negotiation can be done instead of scrapping those materials at the ground value.

This may fetch you some value to the organization in terms of credit note (credit note given by the supplier) therefore controlling the cash flow management.

CONCLUSION:

● There can be a system where in periodical review of inventory could be carried out to keep the inventory under control.

● There should a periodical review of obsolete materials, so that non-moving materials can be identified and suitable action can be initiated.

● At present construction company never mind the minimum amount of surplus materials available in other plants, instead if they use those surplus items delay in production or progressing can be eliminated.

● It is suggested to have to close monitoring of receipts in regard with subsidiary materials either from other plants or purchasing.

● There must be proper communication between purchasing team and site teams.

● Construction industry always gets lured by bulk-purchase discounts into acquiring more inventory than they need.

An inventory becomes obsolete because of changes in product design or because of technical change. Obsolescence cannot be controlled without proper identification of inventories which might become obsolete from time to time.

Finally, inventory management system is considered to be the key role in an organization, which is responsible to complete the company’s project in specific budget within a certain period of time.

It is clearly understood that inventory management of any construction industry will undergo intense pressure and stress in their work environment.

Thus, proper preventive measure like JIT, supply chain management along with the lean management will be suggested to overcome the impacts of inventory management to improve the productivity in construction projects.
ABSTRACT OF STUDY: In supply chain, the importance of having tourism, are that all the components resolved to generate cash, facts, and reliability among the consumers. The supply chain comprises of suppliers of goods, and services that go into the delivery of tourism providing to consumers and this includes the tour operators, agent, supporters, suppliers, ground handlers, accommodation providers in supply chain.

Tourism supply chain has many components, accommodation, transport, excursion, restaurants, handicrafts, food preparers, waste disposal, and infrastructure that support tourism, to destination. Tourism like all supply chain operates on through business to business, and is applied to delivery sustainable performance improvement with good financial performance.

INTRODUCTION: In supply chain hospitality is the mainframe of components, transportation defined as network, of hospitality, excursion, restaurant, handicrafts are the activities engaged in different activities. Supply of food products, and also the use of infrastructure in supply chain has been a part of tourism. The information communication technology, plays an important role in tourism, travel, hospitability, and integrates in tourism activities in the industry, which is essential for the success of the industry. Tourism takes full account of the current and future economic social environment impact; address the need of visitors, the industry environment and the consumer in supply chain.

Sustainable tourism is committed to the industry of making low impact on the environment, culture, and helping to generate future employment. Sustainable tourism is the visit in tourism, and making the importance of the visit, its impact on environment, society, economy, as it involves the primary transportation to the location, local transportation accommodation, entertainment, shopping in supply chain.

Tourism supply chain involves package in several services: 1. Travel agencies operators’ e-tourism, to finalize tourism. 2. Finalize tourism package, transport, and accommodation, hotel industry which includes catering, food beverage, leisure services, sports activities, and health services.

The co-operation of network inside supply chain can represent a competitive advantage to small tour operators, wherein are more sensitive to competition, in tourism supply chain.

The correlation between tourism, and sustainability, of tourism industry is the attraction, competition of each of the organization with tourism industry in supply chain.

Tourism is multi-segment industry, where products are consumed on the spot. Tourism industry is also fragmented industry, with high complexity, due to price sensitiveness nature, of demand and the perish-ability, intangibility, in the tourism industry in supply chain.

Tourism like all other business in supply chain operates through B2B relationship, and can delivery, sustainability performance improvement through good financial performance of the tourism industry, by working to improve the business operation of each supplier in supply chain.

The difference in tourism supply chain is that tourist are in demand, with the product demand, and the product they procure, which are of high service requirement in higher proportion, and which requires prompt or immediate production to enjoy the holiday preference.

The most important distribution system applied in tourism supply chain; 1. One stage: from a primary supplier of services to a consumer through reservation, either directly to travelers. 2. Two stage: where the system involves any middle man or an agent to do the work.

In tourism industry distribution strategy has an impact on development, and it is essential to channel the distribution in an appropriate form the beginning to end in supply chain tourism.

LITERATURE REVIEW:

In supply chain tourism, examines the characteristic of products, identifies, explores, issues, and the concepts of tourism, although there is an emerging progress, but is uneven, and most of the progress focus on marketing activities, and fully considering the range of suppliers, involves range in provisioning and consumption of tourism products. Tourism industry
nature and characteristics, and its supply chain in the areas of demand management, two-party relationship, supply management, inventory management, coordination, information technology.

Concept of tourism in supply chain: Tourism supply chain industry comprises of suppliers, operators, tourists and other organizations, and tourism supply chain, purchasing various resources, and they transferring them to services, and support which finally goes into the hands of the tourists.

Supply chain tourism is also determined by comprehensive products travel industry in supply chain which necessarily cannot supply all the services required in coordination with relevant tourism aspects in supply chain.

On tour the operators level the supply chain management, incorporates planning, scheduling management activities which concerns purchasing, suppliers selection and internal logistic movement in collaboration with marketing personnel.

Features: Supply chain as compared to traditional manufacturing industry, supply chain tourism is characterized by high complexities, risk, and very important is the quality control aspect in supply chain tourism, complexity of the tourism products, also leading to complexity of the tourism leading to complicated process in supply chain tourism.

The requirement of high quality coordination allocation, and a reasonable resource allocation, and if uncontrollable a good quality of service may not be admissible in catering, accommodation, good transportation, supplier efficiency, which are the aspects that face challenges, and it is necessary for the travel enterprises to coordinate any semi-finished product, necessary for tourist in supply chain, and control product quality.

Problems faced by supply chain in tourism: Tourism is basically to satisfy the needs of the tourist, either domestic or internationally, however the allocation of the needs is to be optimized. Tourism do lack any special innovation in supply chain, which is caused by intensive market competition, in the field of supply chain. Any depth of tourism experimental ideas, and supplies pertaining a high class content, becomes insufficient.

Research Methodology:

In supply chain tourism it is to identify the role of mobile technology in achieving sustainable and smart tourism, from the technology, and development, practices under tourism. Tourism is processes that collects, and consolidates data on the destination, provider on-site, experience, to users with the support of mobile technology and creates value of business, source of data include the physical infrastructure, social connection, government human interference, and the integrated effort to focus on efficiency and sustainability.

Tourism in supply chain has also given preference to individual travelers, with relevant information on arranging of trips, having made through Internet of Things facilities.

Based on supply chain tourism many scenic spots have come back on competitive terms, and this way of marketing, and reception centre, has made e-commerce to get in touch with tourists in supply chain, with reference to accommodation, catering, and entertainment.

In this junction many travel enterprises are gradually losing their positions of their potential in the market, hence a diversified tourism supply chain has been adopted to personalize tourists in supply chain.

In the tourism supply chain travel enterprises are provided with risk which are complicated, as they are unable to respond to the market changes in tourism supply chain, and this has led to changes in supply chain, and this consequences has led to short term benefits, thus ignoring the scenic spots, which result in damages to environment, and that have no influence in tourist in supply chain.

In order to bring in sustainable tourism in supply chain, is that planning should be developed to manage tourism activities from a perspective point, in the long run, and on the otherhand reduce the damaged caused to tourism, on travelling, like maintaining the ecological balance of tourism, industry, and protection, development of tourist sports, in supply chain, in order to improve the quality and economy of the country in supply chain.

Tourism in supply chain should have the responsibility to protect culture, environment scene, water sports activities, and medical programs, thus reduce damage to environment, and chose low carbon transportation, E-commerce tourism.

Platform to develop mobile App, which has changed the way to obtain information, and delivery, results in supply chain. Tourism development in supply chain has realized the time and space, limitation, and traveler can deal with suppliers and other information directly. Tourism development in supply chain is collectively analyzing travel information that should be beneficial to make quick decision, and improve products and services.

Results:

In supply chain tourism plays an important role, and in particular well placed to contribute to the increasing
employed social obligation, improving productivity, and bring in economic growth. Financing the supply chain tourism, is more sustainable to development as this faces challenges which includes finance for different sources, impact on green investment tourism, incentives to adopt green tourism, in business practices, in order to develop business practices, and comprehensive long term plans, and practices, and ideas for sustainable tourism development:

**Green Tourism in Supply chain:** Supply chain is given prominence and priority in the development of green tourism, and requires to examine, and evaluate various manufacturing organization to make, and source to disposal that can be coordinated, and controlled as green supply chain, in the design, manufacturing, maintenance, marketing, and consumption of products in tourism supply chain.

**Inventory strategy in supply chain tourism:** The most important strategy is the inventory classification that attracts tourism is the activities that coincide with accommodation, transportation, that are necessary to match with an understanding or visitors demand, satisfaction, destination, and ensure that the expectations are met.

**Customer service strategy in supply chain tourism:** providing accommodation, flight details, and a attraction of tourist destination, which are an vital part of the tourism industry in supply chain.

**Customer satisfaction integration:** supply chain integration that links all the entities in supply chain preferably manufacturing, suppliers, distribution, customers, cooperation, to form a supply chain, and develop products into a single organization with greater integration process in tourism supply chain.

Sustainable in tourism business can also develop the existing business in tourism, and attract view in business, opportunity in supply chain, and increase the revenue in supply chain, as it also contributes to the reputation of the organization operating the supply chain. The supply chain that contribute with quality to improve, and to provide better customer service, with contribution to increase customer satisfaction, strength, bring in value enhance publicity, and marketing tourism opportunities and have better acceptance in supply chain.

**DISCUSSIONS FINDINGS:**

In supply chain consumer habits have changed radically, along with the technological development, travel consumption habits, and the search for information. Towards the behavior has suffered a big transportation with trans-media in supply chain, and the techniques, considered in commercialization, to the practices with tourism is practically non-existent.

In supply chain tourism offers significant opportunities for development, given the sustainability, size contribution, to internationalize trade, rapid growth, and the privilege to other sectors through tourism value chain.

Sustainable supply chain management is the trend to use the policies of purchase, and the practices to facilitate sustainable development at the tourist destination. Research on environmental aspects of manufacturing, while other aspects of sustainability, or the challenges for service sector are largely ignored, but sustainable supply chain has given to the important tour operators, as the product depends on the activities of suppliers, such as providing accommodation, transportation, and relevant activities that form an important part of the contribution to a sustainable tourism, which will be more effective through responsibility for the which the impact of the supplier is important in supply chain.

Supply chain comprises the suppliers of all the goods and services, that go into the delivery of tourism, which the products to the consumer, but also to maintain the harmony among the different aspects, which affects largely the satisfaction of the tourist in the tourism industry. If the tourists become satisfied and contended, they will come again, and it is liable to increase the revenue, which can be distributed, so the prime concern of the tourism and supply chain is necessarily satisfied with guests being given importance, and thus earn profit.

Main parties involved in supply chain are the providers of accommodation, transporters, and the activities handlers in their day to day functions in tourism, which involves also the food supply, and the operations of supply which operates in B2B relationship, and that the supply chain is able to deliver a sustainable performances, along with the financial planning performances by working on improved business, so that each supplier benefits by the life cycle.

The main difference between tourism supply chain and other sectors is that tourist travels to the product, and the product they buy have a particular high performance and service, as it involves the higher proportion of people involvement, in the production for which a holiday experience at a sustainable supply chain is envisaged. Tourism management is a sustainable management and cannot be diminished.

**FUTURE WORK/ CONCLUSION:**

The tourism industry in supply chain must become more rigorous in its effort to monitor, reduce, resource consumption, emission in supply chain. An integrated approach is required regarding the strategies, for decoupling, tourists in growth for environmental degradation and excessive growth.
To spread the efficient use of natural resources there is the need to be strict and good impact on planning, and effective control on natural resources, energy management, improves building, replacing and using renewable energy, which should be supported and replicated contextually in a sensitive manner in supply chain.

Tourism and hospitality industry are mainly developed, influenced by the size of information, and the digital technology usage in an environment. The growth of information and communication technology has become an integral part of the hospitality industry. The use and spread of information and communication technology has brought in a great potential to accelerate growth in tourism and hospitality, and in the process human resources has been developed, by reducing the regulatory network in the development of tourism and hospitality industry, thus increasing the knowledge.

Information and communication technology offers good innovative ideas to cities embedded around with good buildings; good water management systems, excellent road/rail transportation (metro rail) developed in big cities, efficiency in energy system (solar/wind/thermal) power, and thus reduce waste management.

Information and communication technology innovation application offers good transport, manufacturing, agriculture, urban development, which help to bring in the climate change, and it optimizes value chain, in supply chain, by reduction in cost, resource usage, and emissions, thus providing resilience to climate adaption, with launching of space programs, bringing in real timely climate and weather information.

Information and communication technology, manages crisis management, disruption, and has the means of implementing of a consumption pattern by the use of data, which increases transparency, and which empowers the economic development.

Information and communication technology, implements good partnership in most global manufacturing industries promoting technology, building capacity in production, improving hospitality, by enabling data build up and having accountability to the cost.

Sustainable development is so much in focus on the global warming and climate change, and also continuous depletion of natural resources. Implementation of sustainable consumption and production pattern is going on to achieve a sustainable development in tourism and hospitality industries. The growth of industrialization is making developing countries more susceptible to unsustainable pattern of production and consumption.

PURPOSE OF THE STUDY:

In supply chain the over use of consumable goods reduces, reuse, re-cycle, approach, with good services, green disposal in the destination required, improve waste management, tourism facilities, must have adequate treatment facilities and dispose solid and liquid waste, re-cycle, water faculties and prevent protection in supply chain.

In supply chain the objective of the study is to analyze the association between supply chain management of tourism industry, from the context of various industries, and consider the strategic supply partnership information, and sharing the quality of information with some of the key factors in tourism industry.

A tourism chain can be identified upon analyzing the contribution of participants in the chain, while supply chain can be defined as complete evaluation for several reasons for considering tourism chain, as unit of performance, and tourism can be characterized based on tourism organization, and eh attraction within the location, as tourism chain is unique, considering interaction between industries. To maintain and manage such uniqueness, and prepare characteristics, each tourism chain may need different approval and analysis.


SOURCE OF INFORMATION; THE HINDU: TIMES OF INDIA: MINT:

SOURCE OF INFORMATION FROM ELECTRONIC MEDIA:

1. SUPPLY CHAIN MANAGEMENT IN TOURISM:
2. TOURISM SUPPLY CHAIN MANAGEMENT & STRATEGIC PARTNERSHIP;
3. THE EFFECT OF TOURISM IN SUPPLY CHAIN MANAGEMENT PREDICTION ON TOURISM
4. A BRIEF INTRODUCTION TO TOURISM IN SUPPLY CHAIN:
5. ANALYSIS OF TOURIST SATISFACTION IN SUPPLY CHAIN MANAGEMENT.
WTO UPDATE:
DDG WOLFF: THE MULTILATERAL TRADING SYSTEM WILL ENDURE AND WILL ADAPT
DEPUTY DIRECTOR-GENERAL ALAN WM. WOLFF

Speaking at a conference on global trade held at Chatham House, London, on 14 October, Deputy Director-General Alan Wolff said that at a time of slowing global economic growth and political uncertainty the WTO is even more essential, with its rules providing fairness and preventing discrimination. He stressed the importance of discussions aimed at strengthening the WTO and added: “Defending and improving the global trading system is needed now more than ever.” This is what he said:

Serious questions have been raised.

- What are the major structural risks to the international trade system, and can the current structures withstand this period of increased protectionism and political uncertainty?

- Can the US be persuaded to end its veto of new WTO appellate body members and resolve the current impasse? What would be the implications for global trade if the appellate body cannot function after 10 December?

- Is there a constructive agenda for greater reform of the WTO and the multilateral trading order?

- In the absence of consensus at the WTO, do plurilateral agreements represent a way forward for global trade?

These are trying times

- Increases in protection to the point of economic warfare,

- A degree of uncertainty introduced regarding adherence to either current rules and even a major country questioning continuing its WTO membership,

- The upcoming likely loss of the dispute settlement system as it is currently structured,

- An argument over which WTO Members are due special treatment when they claim developing country status,

- Conduct on the part of no small number of governments that indicates an apparent preference for preferential bilateral trade deals, and

- The lack of a single document setting forth a reform agenda despite calls for WTO reform by the G7 and G20.

Is the current multilateral structure up to the challenges presented?

The answer to me is clear. The multilateral trading system will endure and will adapt. This does not mean that all is well. It is not. But the system is in a lot better shape than most commentators believe. Until the traumas began in the recent past, outside of the few specialists in government or academia, few knew or cared whether the WTO existed or not.

The WTO was largely invisible until it began to be tested, and then the dominant narrative has been one of criticism and failure.

This is far from an accurate picture. What is the evidence?

- Most of world trade continues under WTO rules. The prosperity of the world depends upon it.

- The fact that there is one large trade war, and some incipient ones, indicates what we should all have known from history. No international agreement prevents war. But no war lasts forever, and there are very good examples of the ensuing peace contributing to a stronger international trading system. That possibility should not be discounted in the present.

- In a time of rising populist sentiment and slowing global economic growth, the WTO is even more essential. The definition of populism is a belief that whatever systems exist are not delivering on their promise. The WTO does deliver. Its rules provide fairness. At the level of the individual
worker will have access to world markets and not be blocked by protectionist product standards.

- Fairness means that farmers can sell anywhere and not face protectionist requirements limiting imports of food or feed.

- Fairness means that the coming generations will from their laptop computers create products, services and ideas, that through the web have the world as a market, and with this digital access they can earn a living anywhere where there is internet access and the free flow of data.

- Fairness means that needed supplies for productive activities can be sourced anywhere.

- Fairness means not only the prevention of discrimination — against goods and against services, it means the availability of information to locate sources of supplies and to find markets.

- Fairness means flexibilities to enable all to engage in international trade, providing benefits that today do not exist sufficiently for women and micro, medium and small enterprises.

- Bilateral and regional agreements are not a replacement for the multilateral trading system, they build upon it; they require it as a necessary foundation.

Within the multilateral trading system, there are no insuperable structural challenges. Importantly, Members are deeply engaged in seeking solutions to both longstanding and emerging issues.

A specific question has been raised as to whether the blocking of Appointments to the WTO’s Appellate Body will soon end. There are no signs that it will, although progress is being made toward a consensus to deal with a number of the issues raised. The fundamental difference between the EU and the U.S. goes to the nature of WTO dispute settlement. Are the panels and appeals like a court, with Members having no influence over the evolution of law, determined by an independent judicial process, or is the panel and appellate system designed to foster the settlement of disputes without becoming a substitute for negotiating new rules? These are strong differences that go beyond the philosophical. A political resolution will be required.

What will happen in the interim? The distinguishing feature of the WTO, that trade rules are enforceable, will continue. Cases continue to be filed and disputes will continue to be settled whether or not the Appellate Body as now constituted is still functioning.

Pragmatic solutions will be preferred to chaos and unilateralism.

As for WTO reform, there is no single neat reform agenda, set out in one place, no official list. There is no document labeled “Constructing WTO 2.0”. And if there were one, it would be unlikely to be complete. In its place, there is intensive activity on the part of Members representing most of world trade and economic activity

- to extend the rules to electronic commerce,
- to facilitate investment,
- to allow services to be provided across borders more freely,
- to facilitate cross border investment,
- to resolve differences over the dispute settlement system,
- to improve standards, and to provide development assistance to the peoples of the poorest countries.
- Serious work is to be found in the WTO’s committees, the joint initiatives (taking the form at present of negotiation of open plurilateral agreements), and various other negotiating frameworks.

The current outlook, often described in bleak terms, needs to be leavened by the reality of what is being done to maintain and improve the system. Pronouncements of doom for the multilateral trading system are not well-founded. Yet, there are substantial risks, so attention must be paid.

This is not a time for a return to complacency. It is a call to action. There should be a WTO 2.0. The level of ambition needs to be raised. Crises create opportunities. Muddling through will not take the system to a better place. Chatham House, with its work and convening capabilities and other institutions like it can make a difference. Defending and improving the global trading system is needed now more than ever. More can and should be done.

The future is not written yet. It is what we make it.

Source: WTO Website
Key Considerations in Logistics-Outsourcing

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Logistics Sector in India: Logistics is one of the crucial levers being used to unlock shareholder value. Cost of logistics is a significant component in the overall cost of a product or service.

It is estimated that, market size of the logistics sector in India is around USD 160 billion and further it is expected grow up to USD 215 billion by 2020-21 (India’s logistics industry, 2018). Logistics cost in India is estimated at 13-14% of its GDP, is very high (USA 9-10%, Europe 10%, Japan 11%). Due its high growth potential, Indian logistics sector is seen as one of the most attractive in the world. The government has planned large scale investment, aimed towards bring down the cost of logistics from 14% to about a 10% in line with best-in-class global standard (Government of India, Ministry of Commerce, Logistics Division, 2018). The Indian logistics industry is characterized with high costs of operations, low margins, shortage of talent, poor infrastructure, government regulations etc.

The widely used Logistics Performance Index published by the World Bank Group, measures the current logistics environments in six areas: customs, infrastructure, international shipments, logistics quality and competence, tracking and tracing, timeliness. The index ranges from 1 to 5, with a higher score representing better performance. LPI 2018 gives relative ranking of 160 countries across the globe. India is ranked 44 (Germany-01, Japan-05, USA-14, China-26) in LPI 2018. India’s LPI can be improved by reducing clearance time, improving logistics infrastructure, digitization and technological advancements (The World Bank, International Logistics Performance Index, 2018).

Context of Logistics-Outsourcing: Logistics outsourcing refers to the procurement of logistics activities from a logistics service provider. Outsourcing logistics functions offer greater budget flexibility and control. Outsourcing lets the companies pay for only the services they need., when they need them. Outsourcing reduces the need to hire and train specialized staff, brings in fresh expertise and reduces capital and operating expenses. By outsourcing, companies can leverage the expertise of logistics service providers while concentrating on their core competencies.

Key factors to be taken in to consideration in Logistics-Outsourcing are as follows:

- Competitive advantage
- Strategic thinking in shortlisting, evaluation and selection
- Technical capability, existing business and experience
- Past service, performance feedback
- Equipment hire/chartering capability
- Suppliers origins, trade lanes, trade regulations
- Cargo specifications, weight / dimension limit, packaging, handling requirements
- Freight consolidation, improve freight tariffs
- Mode selection, routes of transportation
- Cost-structuring: cost basis & break-up, INCO terms
- Assess internal/external resources, potential risks
- Demand & supply of shipping tonnage
- Volatile freight market- freight bids & spot market
- Ports of loading & discharge, transit time & lead time
- Customs brokerage and licensing, duty drawback
- Port Operations, inland transportation,
- Transit supervision, quality conformance, inspection of goods, insurance
- Review complete shipment handling process, pre & post-shipment coordination
- Storage provisions
- Demurrages & detention charges settlements
- Perfect competition
- Establish strategic relationship

Source: (The World Bank, International Logistics Performance Index, 2018)
Comprehensive SOP: set clear commercial & operational scope
Link key performance indicators to payment terms
Documentation requirements

**Key value additions** are integrated logistics management (end to end), standard operating procedure & key performance indicators, customized service offerings, cost reduction levers, access to skilled expertise, flexible staffing, lower capital expenditures, lower infrastructure investments, reduced risk, accommodated seasonal peaks, economies of scale, execution within the budgeted cost and stipulated time frame, integrated logistics information system.

**Disadvantages:** Disadvantages are dependencies on the service provider, risk of losing control on supply chain, losing sensitive data and loss of confidentiality, hidden costs and legal problems may arise if the outsourcing terms and conditions are not clearly defined in the contract.

**Conclusive Recommendations:** It is recommended to have a top-down management approach, and an extensive understanding of all the stages and implications of logistics-outsourcing. Cost reductions are generated from volume-based consolidation & rate negotiation. Benefits typically range from 10-15% of total logistics spend.

**BIBLIOGRAPHY**


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**INDEX OF EIGHT CORE INDUSTRIES (BASE: 2011-12=100) AUGUST, 2019**

The Eight Core Industries comprise 40.27 per cent of the weight of items included in the Index of Industrial Production (IIP). The combined Index of Eight Core Industries stood at 128.2 in August, 2019, which declined by 0.5 per cent as compared to the index of August, 2018. Its cumulative growth during April to August, 2019-20 was 2.4 per cent.

**Coal:** Coal production (weight: 10.33 per cent) declined by 8.6 per cent in August, 2019 over August, 2018. Its cumulative index declined by 0.2 per cent during April to August, 2019-20 over corresponding period of the previous year.

**Crude Oil:** Crude Oil production (weight: 8.98 per cent) declined by 5.4 per cent in August, 2019 over August, 2018. Its cumulative index declined by 6.1 per cent during April to August, 2019-20 over the corresponding period of previous year.

**Natural Gas:** The Natural Gas production (weight: 6.88 per cent) declined by 3.9 per cent in August, 2019 over August, 2018. Its cumulative index declined by 1.5 per cent during April to August, 2019-20 over the corresponding period of previous year.

**Refinery Products:** Petroleum Refinery production (weight: 28.04 per cent) increased by 2.6 per cent in August, 2019 over August, 2018. Its cumulative index declined by 1.1 per cent during April to August, 2019-20 over the corresponding period of previous year.

**Fertilizers:** Fertilizers production (weight: 2.63 per cent) increased by 2.9 per cent in August, 2019 over August, 2018. Its cumulative index increased by 0.3 per cent during April to August, 2019-20 over the corresponding period of previous year.

**Steel:** Steel production (weight: 17.92 per cent) increased by 5.0 per cent in August, 2019 over August, 2018. Its cumulative index increased by 9.7 per cent during April to August, 2019-20 over the corresponding period of previous year.

**Cement:** Cement production (weight: 5.37 per cent) declined by 4.9 per cent in August, 2019 over August, 2018. Its cumulative index increased by 1.3 per cent during April to August, 2019-20 over the corresponding period of previous year.

**Electricity:** Electricity generation (weight: 19.85 per cent) declined by 2.9 per cent in August, 2019 over August, 2018. Its cumulative index increased by 4.6 per cent during April to August, 2019-20 over the corresponding period of previous year.

Source: PIB, GoI
BEWARE OF INTERNATIONAL COMMERCIAL ARBITRATION

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The dispute: In 2014, M/s SARA International Pvt Ltd, Delhi (SARA) entered into a contract with M/s Swiss Singapore overseas Enterprises Pvt Ltd (SSOPEL), a Aditya Birla Group company registered under the laws of Singapore, for supply of 450000MT of coal to be supplied in 2 lots. First lot 20000MT and second lot 25000MT. The contract was governed and construed in accordance with Commercial Law of Singapore and the courts in Singapore were to have exclusive jurisdiction. Further any disputes, claims to be resolved by binding arbitration in Singapore, in accordance with the Arbitration Rules of Singapore International Arbitration Centre (SIAC Rules).

Dispute arose in respect of shipment of second lot. SARA referred the matter to Arbitration and filed a statement of claims on 20.09.2014. On 28.10.2014, SSOEPL submitted a response to the notice of arbitration evincing its intention to prefer a counterclaim. Since, the parties did not arrive at an agreement on the nomination of the sole arbitrator, the President of the Court of Arbitration of Singapore International Arbitration Centre (SIAC) appointed the Sole Arbitrator in terms of the SIAC Rules, 2013. On 04.03.2015, SSOEPL filed its statement of defence and counterclaims. SARA submitted its statement of reply and defence to counterclaim on 18.04.2015.

SARA claimed that SSOEPL had breached the Agreement by

(a) failure to give notice of the Vessel’s estimated time of arrival seven days prior to arrival
(b) failure to transmit (by e-mail) a non-negotiable set of copy of documents within ten working days of the date of bills of lading;
(c) sending an incomplete discrepant unusable set of documents (which was sent belatedly); and
(d) tendering documents under the L/C, which were discrepant with the L/C

Arbitration Award: SARA’s claim did not meet with any success. The counterclaim preferred by SSOEPL was also rejected. SARA’s claim was Rs 3.5 crs and it flew advocates from India and incurred an expenditure of Rs 8 ks. SSOEPL engaged renowned overseas lawyers and incurred legal expenditure of Rs 85 lks. The Tribunal observed that the Claimant (SARA) failed on the claim, and the Respondent failed on the counterclaim; hence, the Respondent would prima facie be entitled to recover its legal costs and a proportionate share of the costs of the arbitration to reflect its success in defeating the counterclaim.

The counterclaim was a small aspect of the proceedings. It took up at most approximately 10-15% of the Parties’ and their counsels’ efforts in the pleadings, written statements, oral examination and submissions at the hearing. Even after being credited for its cost recovery on the counterclaim, the Claimant would be the net paying party by a significant margin. Thus, the Arbitral Tribunal allocated only 15% of the legal costs to SSOEPL and the remaining 85% to SARA.

Based on the above logic and apportionment worked out, SARA was directed to pay SGD 164,294.40 (approx Rs 85 lks) being a part of SSOEPL’s legal costs and disbursement. SARA was also directed to bear 70% of the costs of arbitration. In addition, SARA was also held liable to pay simple interest at the rate of 5.33% per annum from the date of the award till the date of final payment. (The Arbitration Award is not available in public domain).

Appeal and Court order:: When SSOEPL approached High Court of Delhi for enforcement of the foreign award, SARA contested under section 48(2)(b) (power of courts to set aside Foreign Arbitration awards, if the enforcement of the award is against the Public policy of India) Section 31-A (only reasonable cost) of the Arbitration and Conciliation Act 1996. for setting aside only that portion of the award related to costs. SARA did not contest rejection of their claim of Rs 3.5 crs. It was not SARA’s case that the making of the Arbitral Award was induced or effected by fraud or corruption or was in violation of Section 75 or Section 81 of the Act. It was also not SARA’s case that the Arbitral Award was in conflict with the most basic notions of morality or justice. Thus, the only question for consideration by the Court was whether the Arbitral Award was in contravention with the fundamental policy of Indian law. The Court did not find merit in SARA’s contentions and upheld the Arbitration. award by its order dt 07/03/2018. On appeal Supreme Court also upheld the award.

Thus SARA not only lost their claim of Rs 3.5 crs but also was ordered to pay Rs 85 lks to SSOEPL towards legal costs and 70% of cost of Arbitration. They would
have incurred further legal expenditure in pursuing the matter at Delhi High Court and Supreme Court

Observations: It is seen that even in international contracts Arbitration can be held in India as per Arbitration and Conciliation Act 1996.

Further as per section 31(5) of Arbitration and Conciliation act the parties can fix the proportion in which they will absorb the cost after referring the matter to the Arbitration. Had the Arbitration been held in India and sharing of costs was decided initially, the cost burden on SARA would have been much lower. Incidentally, though SSOEPL is incorporated in Singapore, it is an Aditya Birla group company.

For example, ONGC Ltd, the PSU oil major has incorporated elaborate Arbitration clause as a part of the tender conditions. The Arbitration clause inter alia stipulates that the venue of Arbitration shall be the place from where the order is placed. Further as per the provisions of the Arbitration clause “the parties may after invocation of dispute, agree for sharing the cost of Arbitration on 50:50 basis.”.

Perusal of the points of reference of SARA apparently indicates that there might have been delays in communicating shipment details. Also there might have been delays in retirement of documents due to forwarding/submitting discrepant shipping documents, which apparently might have led to delay in clearing the consignment and possible payment of huge demurrage.

It is also apparent that there was no issue in respect of first consignment. As SARA is trading company they should be familiar with the shipping/documentation practices and could have been proactive to get the details and clear the consignment in time.

The fact that SARA did not challenge the dismissal of their claim of Rs 3.5crs indicate that they did not have a strong case. They only challenged the apportionment of huge legal fees and cost of Arbitration.

Conclusion: One should resort to Arbitration only if one has a strong case. If it is international Arbitration one should doubly ensure the strength of his case before resorting to Arbitration. Otherwise one may lose not only his shirt (claim) but also his trousers (forced to absorb huge legal costs of the other party).

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2. High court of Delhi order dt 7/3/18 (O.M.P.(EFA)(COMM.) 2/2017
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Indian Institute of Materials Management

MISSION

- To promote professional excellence in Materials Management towards National Prosperity through sustainable development.

OBJECTIVE

- To secure a wider recognition of and promote the importance of efficient materials management in commercial and industrial undertakings.
- To safeguard and elevate the professional status of individuals engaged in materials management faculty.
- To constantly impart advanced professional knowledge and thus improve the skill of the person engaged in the materials management function.
- Propagate and promote among the members strict adherence to IIMM code and ethics.

CODE OF ETHICS

- To consider first the total interest of one’s organisation in all transactions without impairing the dignity and responsibility of one’s office:
- To buy without prejudice, seeking to obtain the maximum ultimate value for each rupee of expenditure.
- To subscribe and work for honesty and truth in buying and selling; to denounce all forms and manifestations of commercial bribery and to eschew anti-social practices.
- To accord a prompt and courteous reception so far as conditions will permit, to all who call up on legitimate business mission.
- To respect one’s obligations and those of one’s organisation consistent with good business practices.
EDITOR’S NOTE: This is part of a series of highly popular GxP Lifeline blog posts that we are republishing in order to share their important subject matter and insights with a wider audience and those who may be new to the blog.

As digital technologies continue to evolve, manufacturers are granted more tools to collect and translate the data they need for greater supply network visibility and optimized supply chain performance. These technological advances promise to usher in the next-generation digital supply chain, or Supply Chain 4.0.

Recent analysis suggests companies around the world will continue to make significant investments in technologies and services that enable digital transformation, driven largely by discrete and process manufacturing. Despite the complexity involved in technological disruption, supply chain digitization is at the top of many organizations’ list of strategic priorities, with half of recently surveyed organizations describing it as a top-three focus area.

This digital transformation has enormous implications across life science companies’ supply chain.

Business Impact of Digitally Transforming the Supply Chain: Supply Chain 4.0 has leading companies using new technologies to collect and process data to identify trends, potential issues and opportunities across many systems and functionalities at once. The resultant visibility helps provide a more complete understanding of every element of the supply chain, helping companies to improve decision-making, planning, and responding to issues.

When data is digitized and connected to other data points across the enterprise by the Internet of Things (IoT) and analyzed by artificial intelligence (AI) algorithms, this data becomes more usable and highly valuable. For forward-looking companies that are taking steps toward digital transformation, research is beginning to show a clearer business impact.

According to a study by McKinsey, organizations that digitize their supply chains aggressively “can expect to boost annual growth of earnings before interest and taxes by 3.2 percent. This growth proved “the largest increase from digitizing any business area” in McKinsey’s research. Moreover, the companies making use of supply chain 4.0 tactics were also forecast to raise annual revenue growth by 2.3 percent.

Leaders in digital supply chain management are gaining a variety of competitive advantages using Supply Chain 4.0 methods. According to Boston Consulting Group, key advantages include: increased product availability of up to 10 percentage points; more than 25 percent faster response times to changes in market demand; 30 percent better realization of working-capital reductions; 40-110 percent higher operating margins; and 17-64 percent fewer cash conversion days.

Several technologies have emerged to help life science companies across the globe excel in an increasingly digital economy. According to Capgemini, IoT and automation are the leading technologies deployed at one or more sites at scale in the supply chain, with blockchain, advanced analytics and artificial intelligence right around the corner when it comes to large-scale implementation. Here we’ll look at what these technologies mean for the life science supply chain.

IoT: The IoT holds real potential for optimizing supply chain operations, especially in companies’ need to collect data from across millions of devices and measure performance in real time. IoT devices provide real-time visibility of operations throughout the manufacturing process, from production through distribution. Manufacturers can embed IoT sensors in most items moving through their supply chain, gaining unprecedented visibility and traceability of parts for assembly, finished goods, and more.

“Other potentially impactful supply chain use cases are in preventative maintenance, sourcing, manufacturing, logistics, demand management, and
services,” Gartner reported last year. “These include improved asset utilization, higher uptime through remote monitoring and maintenance, improved customer service by better understanding customer behavior and needs, and proactively responding to and shaping customer demand.”

**Automation** : Automating operations and systems can streamline work along the supply chain. For many life science companies, capturing and managing supplier data often entails dealing with data manually using a paper-based or partially electronic system, and then not updating the data regularly. Digital supplier and supply chain management solutions can be leveraged to collect and process real-time information automatically, thereby eliminating the slow, time-consuming effort of manually gathering, entering and updating data.

In operational processes, for instance, automated systems such as robotics and radio-frequency identification (RFID) can free up supply chain professionals from handling certain mundane processes to focus on more valuable tasks. This has the net effect of lowering operating costs and improving productivity. Manufacturers can expect the role of workers to be reimagined by machines and technology, not to be superseded by them.

**Blockchain** : Blockchain is a decentralized, shared, immutable distributed database of transactions, and it has the potential to be very disruptive. Smart contracts, traceability and authentication, and other highly decentralized supply chain management functions are considered key candidates for blockchain, although most supply chain blockchain projects are still pilot projects.

Citing serialization and track and trace as significant opportunities for blockchain application, Accenture research indicates that 64 percent of life sciences organizations are currently deploying blockchain, with another 30 percent planning to deploy it in the next few years. According to a recent PwC report, the pharmaceutical supply chain likely contains significant potential for near-term adoption. For example, a pharmaceutical company could check history and provenance of products through the immutable transaction history on the blockchain.

**Advanced Analytics** : As IoT data continues growing at a rapid pace, the data is often unstructured, disorganized and incomplete. The massive amount of supply chain data collected is of little use if a company can’t quickly, intelligently analyze and leverage it. Advanced analytics can play a major role in making supply chain data usable and delivering significant benefits.

Advanced data analytics are providing greater insights into processes, products and people, and in turn, enabling supply chain leaders to make better decisions to improve operations and business. Promising use cases include demand/supply planning and predictive maintenance. For instance, Gartner says, “Prescriptive analytics can improve decision making in functional areas like supply chain planning, sourcing, and logistics and transportation, and can be deployed to improve end-to-end supply chain performance.”

**AI** : AI and machine learning technologies, which learn over time as they are exposed to more data, have great potential to transform supply chain processes. They enable companies to collect data from a variety of areas and apply self-improving analysis, and as they are integrated throughout the supply chain, they will likely facilitate the automation of repetitive tasks and deliver intelligence throughout the supply chain systems.

Capgemini research shows that “AI delivers significant transformational benefits, from reducing churn to increasing regulatory compliance.” AI can be used throughout the supply chain to find patterns, forecast future scenarios, identify and correct data errors, surface risks, elevate IoT insights, and improve material planning, order scheduling and logistics.

**Conclusion** : The promise of digital transformation in the global supply chain is greater access to actionable data as a means of increasing operational effectiveness. In a recent Aberdeen study on manufacturing operations, approximately 47 percent of organizations said they believe they need to become more data-driven to remain competitive. Large-scale change is hard, but digital transformation presents the opportunity to revolutionize the supply chain and generate new business value throughout it.

David Butcher has been writing about business and technology trends in the industrial B2B space for more than a decade. Currently a marketing communications specialist at MasterControl, he previously served as editor of ThomasNet News’ Industry Market Trends and as assistant editor for Technology Marketing Corp.’s Customer Interaction Solutions. He holds a bachelor’s degree in journalism from the State University of New York, Purchase.

Source: www.mastercontrol.com
India Inc is right now on the cusp of a revolutionary change in the way it operates Market research firm Nielsen forecasts that the FMCG sector will grow at 9-10% in 2019. The market for India’s FMCG sector is expected to cross $100 Bn by 2020.

Increasing disposable incomes and a shift towards consumption-driven society has helped India’s FMCG sector scale new growth paths over the past two decades. Greater diversification of products across the food and non-food categories, a proliferation of wellness products and greater age and gender-specific segmentation are notable factors that have helped transform the sector in India. Along with that one important factor that will continue to propel the FMCG sector to higher growth paths in the near future is increasing use of digital technology.

In recent years, there is also a greater tilt towards marketing products as ‘healthier’ and ‘herbal’ as consciousness grows among people about the need to consume healthy items. The FMCG sector is today the fourth largest sector in the Indian economy with household and personal care segment accounting for 50% of the market, while healthcare and food and beverages accounting for 31% and 19% of the market in the sector respectively.

Despite a recent slowdown in the Indian economy, the FMCG sector is expected to continue on a growth trajectory over the next few years. Market research firm Nielsen forecasts that the FMCG sector will grow at 9-10% in 2019.

From greater use of digital marketing to increasing customization for e-commerce, an increasing number of players in the sector are today actively embracing digital technology to drive the next phase of growth amid hectic competition.

The ability to digitize fast will also be a significant differentiator between organizations as they transform themselves to suit the changing needs of time.

**Increasing Role Of Digitization Across The Board** : The market for India’s FMCG sector is expected to cross $100 Bn by 2020. Moreover, the number of Internet users in India is expected to cross 650 Mn the same year. Understandably, increasing usage of mobile analytics, artificial intelligence and cloud technology is set to enable the FMCG sector to emerge as a digitally savvy industry over the next decade.

According to a report published by The Boston Consulting Group and Google in 2017, approximately $45 Bn of the FMCG spend will be digitally influenced by 2020, underlining the imminent need for increasing the digital footprint. The report also found that the Indian FMCG sector had been relatively slow in gauging the importance of the digital medium.

Despite time spent on digital medium already equal to time spent on TV among urban users, spends on digital were estimated to be mere 10% of the overall advertisement spends by the FMCG sector. However, two-thirds of organizational leaders surveyed counted digitization as among their top priorities going forward.

Technology has been a major disruptor in the consumer goods sector with more and more organizations looking to leverage the benefits of digitization to boost functioning across departments be it sales, marketing, retail, supply chain management or even HR.

Automation of processes is the key element driving a change and enabling businesses to become more efficient and cost-effective. Automated systems backed by AI tools are being aggressively used to manage inventories, plug the loopholes in supply chain management and make distribution channels more efficient.

Maintaining of digital sales records and a digital account of inventory helps eliminate human errors, hastens the management while also allowing organizations access to quick data pertaining to demand and supply. Automation of services is also being increasingly used to improve customer experience.

The FMCG sector must also work to better leverage the benefits of digital marketing with strategically developed tools to target different sections of populations – urban, rural, male, female, young and old.

**Big Data** : An insight into consumer behavior, an understanding of preferences of different types of consumers and analysis of the footfalls are major elements the FMCG depends on to improve its products and services. Digitization gives organizations easy and quick access to valuable user data on a daily basis.

This data is a minefield of information that when analyzed systematically can help companies understand patterns of consumption and consumer behavior. This, in turn, paves way for proactive decision making and customizing of products and services to meet the needs of buyers.

While gathering and understanding data to make business decisions has always been done by companies,
the availability of big data makes the process highly precise and faster. The quicker you are able to draw inferences from the data and initiate proactive measures in response differentiates you from your competition.

The use of Big Data will not be limited to ecommerce platforms anymore, the FMCG sector as a whole will increasingly act as a digital platform to leverage the benefit of data analytics.

Eretail : While books and apparel were the first major products that helped ecommerce take off as a retail segment, today almost all sectors have been forced to actively design coherent strategies for ecommerce. The contribution of ecommerce to FMCG sales currently stands a little above 1%. However, this is expected to change rapidly over the coming decade.

According to market research firm Nielsen, ecommerce’s contribution to the total FMCG sales is expected to be 11 per cent by 2030. The sale of FMCG products online also often causes friction with the organizations’ distribution networks.

However, organizations that ignore this trend will do so at their own peril. More and more organizations in the FMCG sector are today working to have an aggressive online presence, not only on major ecommerce sites but also have their dedicated selling digital platforms. This trend is expected to further gain pace over the coming decade.

Conclusion : The new government has taken fabulous initiatives in digitalising the Indian economy. This is the need of the hour. The Indian economy is the fastest growing economy in the world and digitalisation shall bring about tremendous transparency within the markets.

The work being done by new young startups by using cutting edge technologies such as IoT and AI is bringing a sea change in the way businesses are being run ... and also in the way in which investors now value business propositions.

The exponential manner in which the valuations of tech-enabled FMCG companies has grown ...and is continually growing ... clearly shows that stakeholders now want to see sound & innovative technologies to be a significant part of their product offerings.

India Inc is right now on the cusp of a revolutionary change in the way it operates.

We are indeed living in some truly exciting times!

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Note: The views and opinions expressed are solely those of the author and does not necessarily reflect the views held by Inc42, its creators or employees. Inc42 is not responsible for the accuracy of any of the information supplied by guest bloggers.

### COMMODITY INDEX

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Source: ETIG Database dated 18th October, 2019
Construction As A Service – CaaS

DR. KRISHNAN SAMPATH  LIFE FELLOW IIMM; LIFE MEMBER INSTITUTE OF RAIL TRANSPORT , LIFE MEMBER, AIMA; MEMBER, CILT MANAGEMENT CONSULTANT, DIRECTOR & CEO E&T CONSTRUCTION PVT. LTD.

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Introduction: Construction as a service – CaaS has nothing to do with SaaS (Software as a Service) except for the phonetics. A discussion has been happening among academia whether construction as such could be termed as a product or a service. This author has dealt extensively on this subject in his PhD thesis in 2013. James Austin (2015) of Autodesk has used this phrase and visualised that technological platform could one day make the offerings under constructions, as a service.

Kenny Ingram (IFS Blog, May 2017) visualises construction industry becoming a service industry. His coinage ‘Servitization’, refers to the service part of the construction. I will agree with his assertion that construction contracts are outcome based which is due to a finite architecture. The end product or the outcome is an Asset. However, a facility management would treat this asset to deliver many facilities. This again is a service management and no physical product delivery is involved other than the facilitated is a product.

Construction of a building / infrastructure is a value creation activity for a client / user. However, the same activity has to create value for the stakeholders including the contractor or the creator of this asset. By bringing in the service element, the process of constructing this asset becomes beneficial across the chain, thereby creating value through both end of the spectrum.

Service Process: Construction involves delivery of a final product – a road, dam, bridge, factory, swimming pool, stadium, school, mass housing, highrise apartments, house etc etc. Every building or infrastructure is individually designed, created and developed with innumerable permutations and computations that can be humanly possible. Therefore there is no uniformity in design or size or quantity etc. However, the construction process remains similar for every swimming pool or for that matter every road or every factory. The process from foundation to roof remains same and the direct materials used for this process doesn’t change from project to project – cement, aggregates, steel, sand, paint etc. The building codes and engineering basics for a construction remain same.

The fundamental and founding process remains same while the end product differs in each case and every time. The design, legal, documentation, development, engineering, procurement, construction, installation, commissioning and maintenance of each building / asset vastly varies from person to person, architect to architect, contractor to contractor etc. The costs involved remains highly individualistic depending upon the character of the end user or the employer.

Construction As A Service: CaaS – Construction as a service, aims to create an atmosphere of convenience to all the activities and the stakeholders, unite all the loosely organised and individualised systems and processes. A set of commonly agreed guiding workflow are to be created for voluntary adaptation. A co-ordinated approach based on the process for standardisation of cost, techniques, codes and delivery systems shall be established. Development of various sub systems and value chains on the CaaS principles will then be developed and encapsulated by various users of the industry. This ecosystem of encapsulation under a underlying process platform for all activities, series of events and players under one platform, using technology, engineering experience, industrial bodies, statutory authorities, facility and building management technology etc, which will eventually evolve a technology unto itself. A relational networking and value creation process can further be developed using the CaaS systems. The CaaS has to create value for not just through a physical asset (for the end user) but to all stakeholders in the relational networking chain by a common platform.

Few Advantages of CaaS:

a. The negative value tag attached with the construction industry will change. The financial institutions have this segment in the ‘Negative’ list.
b. Industry tag will be achieved. Remember, the construction is still not officially recognised as an Industry, in India.
c. Can become a OpenSource system of construction industry, where anyone can develop domain specific / customer specific sub systems
d. Streamlined processes, sub systems, development of skills

e. Organised way of doing business and running processes

f. Will bring in more digitised modules
g. Convert silos into chains paving way for vertical integration

h. Single controlling ownership with many integrated partnership

a. Ex – Engineering and design, Architect, Contractor, Employer, consultants,

i. Distributed ownership model

j. Cloud of the contracting business. The entire process will be connected through digitisation

Conclusion: Construction industry is the second largest employment generator in the country. However, this is still not recognised as an Industry. While the technology has advanced to a great extent, the overall supremacy that this industry should command, much more value creation has to happen across the relational networking chain. We will discuss further about CaaS based on the broad outline above.


Introduction: Inventory is an important asset for any organisation whether it is goods manufacturing or service providing organization. When the inventory is managed effectively, it results in improved customer service, reduced investment need, enhanced productivity, profitability and Return on Investment. When inventory is not managed properly, it pulls down, not only the present profitability of the organizations but also the long-term sustainability and growth of the business itself. If Inventory is maintained more than required level, it locks the capital and denies opportunity to invest that capital into other strategic areas like new IT project or new marketing initiative or new product launch. Higher inventory also will result in obsolescence stock and lead to direct loss for the organization.

At the same time, to avoid this increased cost, and to improve the profit, we can’t reduce inventory beyond a critical level. This will lead to failure of customer service. Meanwhile, various stakeholders in the organization like Corporate Managers, Sales & Marketing managers, Finance and Production managers, need different results and controls on inventory for different purposes to meet their objectives. Normally these needs conflict each other. This trade off needs to be managed with right inventory level.

This means, it is mandatory to maintain inventory at optimal level, to balance customer service and organization’s profitability. This is normally the responsibility of Supply chain manager, in coordination with other business functions and his colleagues like planners and buyers. This team should understand the concepts of inventory, and how to optimize inventory in the organization meeting both organization’s profitability and customer satisfaction.

To maintained inventory at Optimized level, inventory accuracy is mandatory. Here we mean, Accuracy of Inventory as System stock matches with Physical Stock. To avoid any surprises and to achieve Optimized Inventory level, maintaining Inventory Accuracy is very important.

Importance of Inventory Accuracy: If there is difference between Physical vs System stock, it leads to:

- Error in planning and results in Excess or Lower Inventory
- Poor Customer Service
- May lead to Loss of Sales
- Increased Stress in Total Supply Chain
- Increase Cost due to Expedition
- Especially when system stock is more than physical stock

Inventory Accuracy is not only with respect to Quantity, but Quality also should be ensured as part of Inventory Accuracy.

When things are going as per procedures set; and everyone follows the procedures exactly, there should not be any difference between Physical Stock and System Stock. But in practical world, we can hear from more than 90% of Supply Chain and Warehouse Managers that their major problem in inventory is the conflict in Physical Stock and System Stock.

Data Errors: This difference is attributed mainly by following factors:

- Error in Master Data
- Conflicting / Duplicate Database records
- Redundant Databases
- Error in Transactions
- Data Manipulation either intentionally or unintentionally
- Transpositions
- Some transactions might be required to reverse due to some need.
- Without proper procedure, if they are reversed, they lead to error in data
- Typograph Errors
- Missing Data
- Some information, which were not made as mandatory in system, are missing but those may be necessary to have complete information.
- Not updating Transactions online

Ways to Improve Data Accuracy:

First and major step is, to update Data Entry as soon as physical transaction is completed.

- This is missing in many organizations.
- People consolidate the transactions in some sheets or paper, accumulate them and then enter into system. This must be avoided.
- It is better to automate the transactions using technologies like RFID, AIDC, etc. to carry out the transactions.
- Applying technology also will help to trace and track inventory and in turn avoid theft, counterfeit, etc.

Next step is Data Cleaning. This can be done in two days.

- Data Cleansing
- It is the process of scrutinizing through a database to find and fix mistakes such as spelling mistakes, missing information, and false data
- Data Normalization
- It is the process of minimizing duplication of information or safeguard the database against certain types of logical or structural data...
• For example, for A class items it may be minimum in the inventory accuracy.
• Third and Final Step is to maintain Data Accuracy
• Data Cleaning and Normalization is not one-time activity.
• This should be done on continuous basis as the business scenarios are changing, more transactions are done, etc.

**Actions to be taken to maintain Data Accuracy:**
• Role-based policies, procedures need to be defined, for both Master Data and Performing Transactions.
• Especially, conflict of interest should be avoided in Data transactions.
• To avoid any wrong entry or missing data entry, maximum possible restrictions should be in-built in the system itself. For example,
• If some field need to be filled with number, but user enters with text, system should not allow it.
• If some field is mandatory, without filling the data, system should not allow the user to proceed to next step.
• Master Data Coordinators and Users should be trained continuously to maintain the data and they should be imparted the importance of maintaining proper data to have right results.
• Any material movement inside organization should move only with approval or with an order like Production order or Transfer Order, etc.
• Complete the transaction in system, once physical movement is done immediately without any delay,
• If needed, Technology has to be used to automate the transactions.
• Adequate care has to be taken to secure the materials both from pilferage of quality condition,
• Keep Warehouse, Storage Location, Storage pallets/ Boxes in neat condition.
• Make the Identification Labels of Location and Materials clearly visible.
• Use ABC classification to treat the materials accordingly
• A class items get higher security and priority in counting.

**Stock Verification:** Despite all care taken to ensure Data Accuracy in maintaining Master Data and Transactions, steps taken to improve Inventory Accuracy, there are still possibilities to have difference between Physical Stock vs System Stock.

There are two ways of Stock Verification, in general.
• Periodic Counting
• This is the method of stock verifications in a fixed frequency like Monthly, Quarterly or Annually.
• Most of the organizations follow Annual Stock verification
• Cycle Counting
• This is the method of continuous verifications of Physical Inventory vs System Inventory based on specific parameters like
  • Random Storage Bin
  • ABC Classification of Materials

In both the methods, there will be allowed tolerance in the inventory accuracy.
• For example, for A class items it may be minimum 99.0%, for B class items it may be minimum 95%
  and for C class items it may be minimum 92%.

**Periodic counting:** This is traditional method. When it is done on Quarterly or Annual basis, it may require shutdown of plant for few days or weeks also. All items will be covered in this counting process, as it is done on periodic basis.

Since it takes lot of time and effort to do the Counting, people who are not involved in Inventory Handling also will be called to count the materials. This may lead to errors, recounting, etc. Still arriving at accuracy is difficult in this process. Loss of production, involvement of more people for inventory, overtime, etc. makes this process more expensive.

**Cycle Counting:** Count specific number of items every day and post the differences on daily basis or on weekly basis (with consolidation of the counting done in that week). We should ensure all items are covered in counting at least once a year.

There are smart ways to carry out Cycle Counting like
• A class items, may be counted 3 – 4 times per year
• B class items, may be counted 2 – 3 times per year
• C class items, may be counted 1 time per year

A dedicated team may be allocated for this job and due to their expertise in counting, error of counting will be very less compared to Periodic Counting. As the stock counting and verification are done on daily basis, root cause analysis for inventory differences can be found and sorted out so further inventory accuracy can be improved. During Cycle Counting process, team can also check and ensure quality of materials. If some materials are found damaged or poor condition, they may be sent for further corrective action.

**Benefits of Inventory Accuracy:**

As we discussed, Inventory Accuracy is not only Quantity Accuracy but also Quality Assurance. This means stock available in system is assured that is it always physically available in right condition and further usage of Inventory can be taken granted.

Since Inventory Accuracy is maintained (with agreed tolerances), Planning team may not plan for additional Safety Stock or Reorder Point or Lot Size or Lead Time (to bring materials in advance) and so Inventory will not increase.

As system shows real stock, procurement will happen for right quantity in right time and there will not be any unnecessary Stress in the Supply Chain. So, maintaining Inventory Accuracy not only helps to Optimize Inventory but also increases Customer Service Level and Team Motivation.

To remove difference between Physical Stock and System Stock, we are forced to do the stock verifications with either of following procedure:
• Periodic Counting
• Cycle Counting

**Conclusion:** In this modern world, almost all Organizations are running their business with ERP like SAP. Using technology, we need to carry out all these activities and ensure the inventory accuracy.
Innovation = Happy .... Disruption.... = Sad...

If we realized that, there are many disruptive innovations happening surrounding us? Many unruly changes are happening. As said in World Economic Forum-2017, “We are on the blink of disruptive technological changes. We are marching towards Industry 4.0 revolution. Innovation is cause and disruption is effect. Disruption may come from our industry or from outside. Innovation can be interrupt business & cause to lose our job. Innovation may be Technological..., Political... Economical... Social... Legal...Environmental etc. It will impact on our life. What will be the future of current vehicles? Post e-vehicle in mass production, there will be disruption of existing vehicles. Transmission & engine parts will be obsolete. Auto parts manufacture will face recession due to a smaller amount of production of exiting commodities.

One disruptive innovation will cause productivity loss, increased cost of working, will increase more consumer complaints and loss of revenue. Take the lessons from recent disruptions. It is very important to cross check the credentials of our sources with our own check list.

Big data analysis, Drone delivery, Robotics, 3D printing, Virtual/ Augmented reality, Artificial intelligent, Robotic surgery, are the innovative changes which will cause disruption, unemployment, Inequality & poverty. Currently we are facing in auto industry the sales which is going from bad to worse. Data analytics and artificial intelligent influencing end to end business process. Usage of GPRS and GPS systems will help supply chain business in a big way. Industry must grip technical disruption and work on VUCA world. Artificial Intelligent & machine learning to be applied to analyze & manage demand. Process reengineering, savings in overheads, increase speed to market, increase accuracy, reduce cost to market are visible benefits of Digitization.

There are some operational challenges in digitalization like non-availability of the necessary competencies, data related issues (integrity, accessibility, and quality), continuing current processes rather than updating digital applications. Digitization will reduce our cost. We must transform our bureaucratic habits in disciplined digitized friendly habits.

We live in a VUCA (volatility, uncertainty, complexity and ambiguity) world. We can mitigate every challenge in the fast-paced world. We must carefully understand its volatilities. Aggregate risk mitigation strategies to be adopted to reduce the losses. It is important to understanding these innovative technologies & manage them. We always need to be prepared for disruptions.

Brand reputation is right proportional to its product quality. Consumer experience, marketing, sales & quality of after sales service having ability to understand the consumer behavior. Customer require best quality product & best quality services. All parameter like PQCDSM must be in best quality. We must take best quality solutions to address disruption. We must adopt Quality concept culture instead of just technology adoption. The organization should be able to drive quality change by bringing the right people in current business model and reduce the bureaucracy.

We must keep belief on that “Technology is not for disruption”. But it is useful & helpful for human kind. Everybody must trust that, disruption increase our ability and if we react in anxiety there will not be any solution.

We must remember that behind every challenge having an opportunity for us.

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QUALITY CULTURE IN DIGITIZATION JOURNEY

KISHOR NAREWADI
M&M-FES-SCPC

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**ALWAR BRANCH**

30/9/2019: Indian Institute of Materials Management Alwar branch executive committee led by Sh. Lalit Raj Meena visited the following engineering institutions of Alwar to market the IIMM and its education and other professional activities.

- Sidhi Vinayak Engineering College
- Institute of engineering and technology
- NIIT
- Laxmi Devi Institute of engineering and technology
- Modern Institute of Technology And Research Center.

The Management of All the institutions appriciated the activities and effort of IIMM for development of the Materials Management profession and invited the IIMM Alwar Branch for delivery of the seminar.

1/10/2019: Indian Institute of Materials Management, Alwar Branch organized Three Seminars on 1/10/2019 at Sidhi Vinayak Engineering College, Alwar between 11.00 - 12.00 AM

Laxmi Devi Institute of engineering and technology between 1.00- 2.00 PM

Mr. Lalit Raj Meena, Founder Chairman Alwar Branch and NST IIMM delivered the talk. Mr. Meena briefed the students about the IIMM and Materials Management as profession. There is a large demand of MM professional in the Industries of Alwar district. The Industries of Alwar are hiring the MM professional from other states and a call was given to students to join the AICTE approved courses of IIMM.

During the Seminar Mr. Meena briefed about the basic concept of Supply Chain Management, its application for the smooth and efficient operation of an Industries. During the talk it was mentioned that 2% savings in procurement of Raw Materials is equivalent to 10% increase in the profit of an Industry. The Various tool of Digital technology ie. AI, IOT, Block chain, ERP, SAP EDI and their application with benefits to the Industries were discussed. The talk was appriciated by the Management and Faculities of all the Institutions and the students. In all three Institutions about 650 students participated in the Seminar Mr. Chandan Kathuria, Vice Chairman, Alwar Branch, Dr. S K Sharma Director MITRC, Dr. Sanjeev Tiwari Principal Sidhi Vinayak Dr. Dwarka Prasad Principal LIET and Mr. M L Yadav Chairman Institution of Engineers were also present during the program.

**BANGALORE BRANCH**

20th and 21st September 2019: Indian Institute of Materials Management (IIMM), Bangalore Branch organized a Two – Day workshop on “Cost Reduction...
in Sourcing and Purchasing” on 20th and 21st September 2019 at Hotel Regenta Place, Bangalore. Senior faculty of IIMM handled the sessions. Twenty delegates participated in the workshop. The Workshop witnessed intense Faculty- Delegate interactions and received excellent feedback from participants.

18th and 19th October 2019 : Indian Institute of Materials Management (IIMM), Bangalore Branch organized a Two – Day workshop on “Supplier Relationship Management and Advanced Negotiation Skills” on 18th and 19th October 2019 at Hotel Regenta Place, Bangalore. The sessions were handled by IIMM’s Distinguished Members who are ITC Geneva qualified Trainers. Thirty delegates participated in the workshop from various reputed organizations. The faculty made the proceedings lively and interactive with a good mix of professional inputs, humor, case studies and role play. We have received excellent feedback on the value addition from the participants and requests for information on future programs planned by the Branch.

27.09.2019 - Evening Lecture Program : Indian Institute of Materials Management (IIMM), Bangalore Branch conducted a lecture program on “Essence of Spare Parts Management” on 27th September 2019 at Ajantha Hotel, Bangalore. Mr. C.L. Roy, Chief Consultant, RI Consulting Ltd was the speaker. The passion and energy with which our Septuagenarian Life Member presented the nuances of Spare Parts Management was a great inspiration and kept the audience engrossed throughout. At the end the Members interacted with the speaker and exchanged their experiences.

MANGALORE BRANCH

Welcome Speech- by Branch Chairman Sri Philip C followed by Introduction of the Speaker-by Branch Vice Chairman Sri. Nagaraj Bhat

Performing MC-by Branch Secretary Sri. Deepak T.

Sri Srinivas Rao, Speaker for the day, exchanging the Insights on the subject.

Nearly 45 audiences relishing the talk

Vote of Thanks by Branch Treasurer Sri. Naveen BL

Members dispersed with fond hope of meeting soon another interesting presentation.
Introduction of the Speaker by Branch Vice Chairman Sri. Nagaraj Bhat

Dr. Jayaprakash Rao, Speaker for the day, exchanging the Insights on the subject.

Performing MC-by Branch Secretary Sri. Deepak T.

Nearly 35 audiences relishing the talk

Presenting Memento and Flower pot to the speaker as token of gratitude

Vote of Thanks by Branch Treasurer Sri. Naveen BL

Members dispersed with fond hope of meeting soon another interesting presentation.
Indian Institute of Materials Management. Mumbai Branch organised a two day in house training program at Material Organisation on 3rd and 4th of October at their training cell at Ghatkopar, Mumbai on the topic “Materials Management and Soft Skills”. The training covered the following topics on day one were Warehouse Management, Preservation of Stores, Materials Management and Material Handling. The topics covered on day two were Supervisory skills, Behavioural Skills, Time Management and Human Values and Ethics.

The faculty for day one were Mr. Alok Ranjan Sarkar, Advisor - IIMM (Ex GM - Materials & GM Engineering & Projects BPCL) and Mr. Virendra Mantri Ex - General Manager (Product Cost Management), Mahindra. The faculty for the second day was Dr. Neil Sequeira, Vice President – HR and Admin KokilabenDhirubhaiAmbani Hospital. The program was highly interactive and the feedback obtained at the end of the program was very encouraging.

The Program was co-ordinated by Dy. Director IIMM Mumbai Branch, Mr. R. B. Menon and his team at Branch Office.

Indian Institute of Materials Management, Mumbai Branch conducted a one day in house training program on Contract Management for “Shipping Corporation of India” on 1st October 2019 at Maritime Training Institute, Powai, Mumbai. The training imparted were for the following topics Law of Contracts & Bidding process in Public Sector, Contract Provisions & Contract Administration, Clauses / Commercial terms, Contract administration, Contract Schedule, Legal Remedies and Dispute Resolution — Settling disputes.

The faculty were Mr. Alok Ranjan Sarkar, Advisor - IIMM Mumbai branch and was well supported by Dy. Director IIMM Mumbai Branch, Mr. R. B. Menon and his team at Branch Office.

One day In house Training Program on “Procurement and Contract Management” was held at Rashtriya Chemicals & Fertilizers Limited on September 14, 2019 at their conference hall at Chembur. The training gave emphasis to General Principles of Public Procurement Contracts Planning Processes, Cost Estimation, Drafting the essential provisions in a Contract, The Process of E-Procurement & E-Reverse auction, Contract closing - The Importance of Contract Closing Processes of Contract Close.

The faculty were Mr. Alok Ranjan Sarkar, Advisor - IIMM (Ex GM - Materials & GM Engineering & Projects BPCL) and Mr. Arun Banavali, Ex. Vice President – Sourcing & Supply Chain, HCC. The program was highly interactive and the feedback obtained at the end of the program was very encouraging.

The Program was co-ordinated by Mr. A. R. Sarkar Advisor, IIMM Mumbai branch and was well supported by Dy Director IIMM Mumbai Branch, Mr. R. B. Menon and his team at Branch Office.
PUNE BRANCH

IIMM, Pune Branch organized a lecture on “Overview of Import Export Policies & Procedures” which was held on Friday, 18th October, 2019 at the Branch Office. The lecture was delivered by Mr. George Jacob, an expert in EXIM.

Chairman - Mr. Terrence Fernandes Addressing the attendees

Chairman Terrence Fernandes welcomed all the members for the session & briefed members of upcoming activities of the branch. He also emphasized on membership growth & requested each member to bring at least two life members to have an exponential membership growth.

Immediate past Chairman Mr. Amit Borkar introduced the speaker, Mr. Jacob George, who has 40 years of vast experience in International Trade in a very large Engineering Company. He has heading the Exim Dept for 18 years. He has also been working with Government Departments and agencies, for procedural simplifications and formulations of policies for boosting exports.

The lecture was based on the latest development in International Trade & how important it is for the economic growth of our country. Mr. George shared his experiences & knowledge on the topic & suggested the importance for all professionals working in this field to keep themselves updated on latest developments through various news feeds, Trade journals, magazines, etc.

The program was attended by more than 40 members. Hon, Treasurer, Mr. Suhas Gawas concluded the session with a vote of thanks.

THIRUVANANTHAPURAM BRANCH

The First Meeting of the newly elected Executive Committee of IIMM Thiruvanantapuram Branch was held on 11-10-2019 (Friday) at 6.30 PM at the IIMM office hall. Chairman Dr. Koshy M. George conducted the proceedings.

Shri K G Nair being felicitated by Dr. Koshy M George, Branch Chairman

Executive Committee of IIMM, Thiruvanantapuram Branch felicitated Shri K G Nair, former Chairman of the Branch and National Council Member of IIMM on his 80th birth day. Considering his valuable contribution to IIMM, he was honoured by presenting a shawl for his dedicated and honest work for the growth of the branch.

Branch Chairman and other senior members of the Executive Committee commemorated his valuable contribution for the establishment and growth of the Branch in the past three decades.

In reply Shri K G Nair expressed thanks to IIMM, Thiruvanantapuram Branch for the felicitation and for the good words showered on him at this occasion.
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EXECUTIVE HEALTH

SENIOR EXERCISE AND FITNESS TIPS

No matter your age, it’s never too late to get ût. These easy tips will help you get started safely and make it fun.

What are the benefits of exercise for older adults?

There are many reasons why we tend to slow down and become more sedentary with age. It may be due to health problems, weight or pain issues, or worries about falling. Or perhaps you think that exercising simply isn’t for you. But as you grow older, an active lifestyle becomes more important than ever to your health.

A recent Swedish study found that physical activity was the number one contributor to longevity, adding extra years to your life—even if you don’t start exercising until your senior years. But getting active is not just about adding years to your life, it’s about adding life to your years.

Getting moving can help boost your energy, maintain your independence, protect your heart, and manage symptoms of illness or pain as well as your weight. Regular exercise is also good for your mood, mood, and memory.

Physical health benefits

Helps you maintain or lose weight. As metabolism naturally slows with age, maintaining a healthy weight is a challenge. Exercise helps increase metabolism and builds muscle mass, helping to burn more calories.

Reduces the impact of illness and chronic disease. People who exercise tend to have improved immune and digestive functioning, better blood pressure and bone density, and a lower risk of Alzheimer’s disease, diabetes, obesity, heart disease, osteoporosis, and certain cancers.

Enhances mobility, flexibility, and balance. Exercise improves your strength, flexibility and posture, which in turn will help with balance, coordination, and reducing the risk of falls. Strength training also helps alleviate the symptoms of chronic conditions such as arthritis.

Mental health benefits

Improves sleep. Quality sleep is vital for your overall health. Regular activity can help you fall asleep more quickly, sleep more deeply, and wake feeling more energetic and refreshed.

Boosts mood and self-confidence. Exercise is a huge stress reliever and the endorphins produced can actually help reduce feelings of sadness, depression, or anxiety. Being active and feeling strong naturally helps you feel more self-confident.

Does amazing things for the brain. Activities like Sudoku or crossword puzzles can help keep your brain active, but little comes close to the beneficial effects of exercise on the brain. It can help brain functions as diverse as multitasking and creativity and can help prevent memory loss, cognitive decline, and dementia. Getting active may even help slow the progression of brain disorders such as Alzheimer’s disease.

Overcoming obstacles to getting active as you age:

Starting or maintaining a regular exercise routine can be a challenge at any age—and it doesn’t get any easier as you get older. You may feel discouraged by health problems, aches and pains, or concerns about injuries or falls. If you’ve never exercised before, you may not know where to begin, or perhaps you think you’re too old or frail, and can never live up to the standards you set when you were younger. Or maybe you just think that exercise is boring.

While these may seem like good reasons to slow down and take it easy as you age, they’re even better reasons to get moving. Becoming more active can energize your mood, relieve stress, help you manage symptoms of illness and pain, and improve your overall sense of well-being. And reaping the rewards of exercise doesn’t have to involve strenuous workouts or trips to the gym. You can gain the benefits from adding more movement and activity to your life, even in small ways. No matter your age or physical condition, it’s never too late to get your body moving, boost your health and outlook, and improve how you age.

Six myths about activity and aging

Myth 1: There’s no point to exercising. I’m going to get old anyway.

Fact: Regular physical activity helps you look and feel younger and stay independent longer. It also lowers your risk for a variety of conditions, including Alzheimer’s and dementia, heart disease, diabetes, certain cancers, high blood pressure, and obesity. And the mood benefits of exercise can be just as great at 70 or 80 as they were at 20 or 30.

Myth 2: Exercise puts me at risk of falling down.

Fact: Regular exercise, by building strength and stamina, prevents loss of bone mass and improves balance, actually reducing your risk of falling.

Myth 3: It’s too frustrating: I’ll never be the athlete I once was.

Fact: Changes in hormones, metabolism, bone density, and muscle mass mean that strength and performance levels inevitably decline with age, but that doesn’t mean you can no longer derive a sense of achievement from physical activity or improve your health. The key is to set lifestyle goals that are appropriate for your age. And remember: a sedentary lifestyle takes a much greater toll on athletic ability than biological aging.

Myth 4: I’m too old to start exercising.

Fact: You’re never too old to get moving and improve your health! In fact, adults who become active later in life often show greater physical and mental improvements than their younger counterparts. If you’ve never exercised before, or it’s been a while, you won’t be encumbered by the same sports injuries that many regular exercisers experience in later life. In other words, there aren’t as many miles on your clock so you’ll quickly start reaping the rewards. Just begin with gentle activities and build up from there.

Myth 5: I can’t exercise because I’m disabled.

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Fact: Chair-bound people face special challenges but can lift light weights, stretch, and do chair aerobics, chair yoga, and chair Tai Chi to increase their range of motion, improve muscle tone and flexibility, and promote cardiovascular health. Many swimming pools offer access to wheelchair users and there are adaptive exercise programs for wheelchair sports such as basketball.

Myth 6: I’m too weak or have too many aches and pains.
Fact: Getting moving can help you manage pain and improve your strength and self-confidence. Many older people find that regular activity not only helps stem the decline in strength and vitality that comes with age, but actually improves it. The key is to start off gently.

What if you hate to exercise?
If you dread working out, you’re not alone. But you don’t have to exercise until you’re soaked in sweat or every muscle aches to make a big difference to your health. Think about activities that you enjoy and how you can incorporate them into an exercise routine:

- Listen to music or an audiobook while lifting weights.
- Window shopping while walking laps at the mall.
- Get competitive while playing tennis. Take photographs on a nature hike.
- Meet new people at a yoga class or fitness center.
- Watch a favorite movie or TV show while on the treadmill.
- Instead of chatting with a friend over coffee, chat while walking, stretching, or strength training.
- Walk the golf course instead of using a cart.
- Walk or play fetch with a dog. If you don’t own a dog, offer to take a neighbor’s dog for a walk or volunteer at a pet shelter or rescue group.
- Go for a run, walk, or cycle when you’re feeling stressed—see how much better you feel afterwards.
- Find an exercise buddy, someone whose company you really enjoy, and try activities you’ve never tried before—you may find something you love. At worst, you’ve spent time with a good friend.

Building a balanced exercise plan
Staying active is not a science. Just remember that mixing different types of physical activity helps both to keep your workouts interesting and improve your overall health. The key is to find activities that you enjoy—based on the four building blocks of fitness. These are:

1: Balance
- What it is: Maintains standing and stability, whether you’re stationary or moving around. Try yoga, Tai Chi, and posture exercises to gain confidence with balance.
- Why it’s good for you: Improves balance, posture, and quality of your walking. Also reduces risk of falling and fear of falls.

2: Cardio
- What it is: Uses large muscle groups in rhythmic motions over a period of time. Cardio workouts get your heart pumping and you may even feel a little short of breath. Includes walking, stair climbing, swimming, hiking, cycling, rowing, tennis, and dancing.
- Why it’s good for you: Helps lessen fatigue and shortness of breath. Promotes independence by improving endurance for daily activities such as walking, house cleaning, and errands.

3: Strength and power training
- What it is: Builds up muscle with repetitive motion using weight or external resistance from body weight, machines, free weights, or elastic bands. Power training is often strength training done at a faster speed to increase power and reaction times.
- Why it’s good for you: Strength training helps prevent loss of bone mass, builds muscle, and improves balance—both important for staying active and avoiding falls. Power training can improve your speed while crossing the street, for example, or prevent falls by enabling you to react quickly if you start to trip or lose balance. Building strength and power will help you stay independent and make day-to-day activities easier such as opening a jar, getting in and out of a car, and lifting objects.

4: Flexibility
- What it is: Challenges the ability of your body’s joints to move freely through a full range of motion. This can be done through stationary stretches and stretches that involve movement to keep your muscles and joints supple and less prone to injury. Yoga is an excellent means of improving flexibility.
- Why it’s good for you: Helps your body stay limber and increases your range of movement or ordinary physical activities, such as looking behind while driving, tying your shoes, shampooing your hair, and playing with your grandchildren.

Types of activities beneficial to older adults
- Walking. Walking is a perfect way to start exercising. It requires no special equipment, aside from a pair of comfortable walking shoes, and can be done anywhere.
- Senior sports or fitness classes. Keeps you motivated while also providing a source of fun, stress relief, and a place to meet friends.
- Water aerobics and water sports. Working out in water reduces stress and strain on the body’s joints.
- Yoga. Combines a series of poses with breathing. Moving through the poses helps improve strength, flexibility and balance, and can be adapted to any level.
- Tai Chi and Qi Gong. Martial arts-inspired systems of movement that increase balance and strength. Classes for seniors are often available at local YMCA or community centers.

Getting started safely
Getting active is one of the healthiest decisions you can make as you age, but it’s important to do it safely.

Get medical clearance from your doctor before starting an exercise program, especially if you have a preexisting condition. Ask if there are any activities you should avoid.

Consider health concerns. Keep in mind how your ongoing health problems affect your workouts. For example, diabetics may need to adjust the timing of medication and meal plans when setting an exercise schedule.

Listen to your body. Exercise should never hurt or make you feel lousy. Stop exercising immediately and call your doctor if you feel dizzy or short of breath, develop chest pain or pressure, break out in a cold sweat, or experience pain. And put your routine on hold if a joint is red, swollen,
or tender to the touch—the best way to cope with injuries is to avoid them in the first place. If you regularly experience pain or discomfort after exercising, try exercising for less time but more frequently throughout the day.

**Start slow and build up steadily.** If you haven’t been active in a while, build up your exercise program little by little. Try spacing workouts in ten-minute increments twice a day. Or try just one class each week. If you’re concerned about falling or have an ongoing heart problem, start with easy chair exercises to slowly increase your fitness and confidence.

**Prevent injury and discomfort** by warming up, cooling down, and keeping water handy.

**Commit to an exercise schedule** for at least 3 or 4 weeks so that it becomes habit, and force yourself to stick with it. This is much easier if you find activities you enjoy.

**Experiment with mindfulness.** Instead of zoning out when you exercise, try to focus on how your body feels as you move—the rhythm of your breathing, the way your feet strike the ground, your muscles flexing, for example. Practicing mindfulness will improve your physical condition faster, better relieve stress and anxiety, and make you more likely to avoid accidents or injuries.

If you have an injury, disability, weight problem, or diabetes...

While there are challenges that come with exercising with mobility issues, by adopting a creative approach, you can overcome any physical limitations and find enjoyable ways to get active and improve your health and well-being.

**Support activity levels with the right diet**

Diet as well as exercise can have a major impact on energy, mood, and fitness. Many older adults don’t get sufficient high-quality protein in their diets despite evidence suggesting they actually need more than younger people to maintain energy levels and lean muscle mass, promote recovery from illness and injury, and support overall health. Older adults without kidney disease or diabetes should aim for about 0.5 grams of protein per pound of body weight.

Vary your sources of protein instead of relying on just red meat, including more fish, poultry, beans, and eggs.

Reduce the amount of processed carbohydrates you consume—pastry, cakes, pizza, cookies and chips—and replace them with high-quality protein.

Snack on nuts and seeds instead of chips, replace a baked dessert with Greek yogurt, swap out slices of pizza for a grilled chicken breast and a side of beans.

**Tips for staying motivated**

It’s easy to become discouraged when illness, injury, or changes in the weather interrupt your routine and seem to set you back to square one. But there are ways to stay motivated when life’s challenges get in the way:

**Focus on short-term goals,** such as improving your mood and energy levels and reducing stress, rather than goals such as weight loss, which can take longer to achieve.

**Reward yourself** when you successfully complete a workout, reach a new fitness goal, or simply show up on a day when you were tempted to ditch your activity plans. Choose something you look forward to, but don’t allow yourself to do until after exercising, such as having a hot bath or a favorite cup of coffee.

**Keep a log.** Writing down your activities in an exercise journal not only holds you accountable, but is also a reminder of your accomplishments.

**Get support.** When you work out with a friend or family member, you can encourage and motivate each other.

**How to stay fit when your routine changes**

**You’re on vacation**

- Many hotels now have fitness centers. Bring along your exercise clothing or equipment (resistance band, bathing suit, or walking shoes).
- Get out and see the sights on foot rather than just by tour bus.

**Caring for an ill spouse is taking up too much of your time**

- Work out to an exercise video when your spouse is napping
- Ask a family member or friend to come over so you can go for a walk

**Your usual exercise buddy moves away**

- Ask another friend to go with you on your daily walk.
- Reach out to other older adults in your area—many are in the same boat, so be the one to break the ice.
- Join an exercise class at your local community center or senior center. This is a great way to meet other active people.

**You move to a new community**

- Check out the fitness centers, parks, community websites, and recreation associations in your new neighborhood.
- Look for activities that match your interests and abilities.

**How to stay fit when your routine changes**

**Illness keeps you out of action for a few weeks**

- Wait until you feel better and then start your activity again.
- Gradually build back up to your previous level of activity.

**You’re recovering from injury or surgery**

- Talk with your doctor about specific exercises and activities you can do safely.
- ❖

**Recommended app:** Start slowly and gradually build up your activity level as you become stronger.

**Yoga for Complete Beginners:** A free introductory yoga app with a series of 3 different yoga classes.

**Yoga for Complete Beginners (iOS)**

**Yoga for Complete Beginners (Android)**

**Other resources**

**Exercise and Aging:** Can you walk away from Father Time? While aging is inevitable, exercise can help you to age with grace and vigor. (Harvard Health Publications)

**How Exercise Can Help You**—Covers the benefits of exercise for seniors, safe exercises to try, an FAQ, and charts to track your progress. (Go4Life NIH)

**Benefits of Aquatic Fitness**—Discusses the benefits of water exercise for people with medical conditions like osteoporosis, diabetes, and back problems. (Aquatic Exercise Association)

**Authors:** Lawrence Robinson, Melinda Smith, M.A., and Jeanne Segal, Ph.D. Last updated: June 2019.
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